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## GROWTH AND FRUITING OF TWO PIMA COTTONS

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GROWTH AND FRUITING OF TWO PIMA COTTONS //

By G. D. Butler, Jr., D. L. Kittock, and L. L. H. Pinkas<sup>1</sup>

### INTRODUCTION

Agricultural engineers have played a leading role in the development of computer simulations of crop production. The pioneering work was done by Stapleton (6)<sup>2</sup> in the mid-1960's. In 1968, Regional Project S-69, Engineering Systems for Cotton Production, jointly funded and staffed by Federal and State research workers, carried the work forward. Project workers Bowen et al. (1) gave three major reasons for a crop simulation:

1. To guide research for improving the efficiency of the production system.
2. To reduce the cost of applied research by testing the interaction of weather and cultural practices on the computer instead of in the field.
3. To optimize crop management systems.

Two simulations have been developed for short staple cotton: COTTON by Stapleton et al. (7) in Arizona and SIMCOT II by McKinion et al. (5) in Mississippi. Gutierrez et al. (2) have written a simulation for acala cotton in California. When these or other similar models are adapted for Pima cotton, there will be a need for data to validate the results of the simulations.

During 1967, extensive observations on two Pima cottons were made at two locations in Arizona with three irrigations at each location. The following report has been prepared to provide input data such as temperatures, humidities, and irrigation amounts for making computer simulations. The observed development of the cotton plants in the different treatments is given at weekly intervals with data such as plant height and the number of nodes, squares, flowers, and bolls. This information is useful for validating simulations that have used the input data.

### METHODS AND MATERIALS

Experiments were conducted during 1967 at the University of Arizona Cotton Research Center, Phoenix, Ariz. (elevation 1,100 ft), and at the University of Arizona Safford Experiment Station, Safford, Ariz. (elevation 2,900 ft). Two American Pima cotton (*Gossypium barbadense* L.) cultivars, 'Pima S-3' and 'Pima S-4', were planted in split plots with four replications and three irrigation treatments as main plots and the two cultivars as subplots.

Temperature and relative humidity were measured with recording hygrothermographs located in each field. The shelters were raised periodically so that they remained near the top of the plant canopy. The field at Phoenix received a preplant irrigation that was sufficient to fill the soil profile and to leach salts. It was planted on April 3 (093),<sup>3</sup> and 50 percent of the plants had

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<sup>2</sup>Italic numbers in parentheses refer to Literature Cited, p. 3.

<sup>3</sup>Day of the year.

emerged on April 13 (103). The field received 50 pounds of nitrogen per acre preplant and 100 pounds of nitrogen per acre on May 22 (142) in the form of urea. The field at Safford was planted in dry soil and was irrigated for germination and to fill the soil profile on May 2 (122). On May 13 (133), 50 percent of the plants had emerged. No nitrogen fertilizer was used at Safford because residual nitrogen from alfalfa rotation plus nitrogen in water (approximately 3 pounds of N per acre-inch) is enough to meet crop needs. At each location, all the plots were irrigated in every second furrow (in alternate rows). At Phoenix, the percentage of available soil moisture was determined gravimetrically from samples obtained from each of the top 6 feet.

Observations of the plants were begun when the plants were in the cotyledon stage, which was April 27 (117) at Phoenix and May 25 (145) at Safford. Observations were made twice weekly, except from July 17 (198) to September 4 (247) at Safford when only weekly observations were made. Plants were thinned as they emerged to one plant every 6 inches in the rows, which were 40 inches apart. The first measurements consisted of 15 plants per plot. At Safford, after thinning, there was approximately a 30 percent plant mortality, apparently caused by high soil salinity. A few additional plants were lost at both locations due to stem breakage while handling.

The following measurements were made in each treatment:

1. Plant height (in centimeters) from the soil surface level at emergence to the growing point.
2. The number of clearly visible nodes above the cotyledonary nodes.
3. The date and location on the plant when squares were first seen, when they abscised, when the flower was seen, when the boll abscised, or when the boll matured.
4. The seed cotton weight, seed weight, and the number of seeds were determined for each of the matured bolls but was reported by Kittock and Pinkas (4).

No new fruiting positions (squares first seen) were noted after August 25 (237) at Phoenix and August 31 (243) at Safford. Those noted on these dates, or earlier, were followed to abscission or to boll maturity.

Pink bollworm, *Pectinophora gossypiella* (Saunders), was the only serious insect pest in either field. Data on damage to the crop by this insect was published by Kittock and Pinkas (3). The test at Safford received four insecticide applications by airplane. On September 20 and 25, the field was treated with toxaphene at 4 lb active ingredients per acre plus Dylox at 1.5 lb a.i./acre. On September 30 and October 6, the treatment was Sevin at 2.0 lb a.i./acre plus toxaphene at 1.5 lb a.i./acre.

Insecticide applications at Phoenix, applied by air, were as follows: Bidrin 1/3 lb acre on 5/2; Dylox at 2 lb/acre on 6/22, 6/29, and at 3 lb/acre on 7/7; Sevin at 2 1/2 lb/acre on 7/12, 7/17, 7/22, 7/27, 8/1, 8/15, 8/20, 9/14, 9/19, 9/24, and 9/29; methyl parathion at 1 lb/acre on 8/5, 8/10, 8/30, and 10/6; and methyl parathion at 1 lb/acre plus Kelthane at 2 quarts/acre on 8/25, 9/4, and 9/9. The field was defoliated with Magchlor at 2 gal/acre on 10/26.

## RESULTS

Hourly temperatures in degrees Celsius with the daily maximum, minimum, and average temperatures are given in table 1<sup>4</sup> for Phoenix and in table 2 for Safford. At Phoenix, the April average temperature was 4° to 5° F below normal;

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<sup>4</sup>All tables appear in the Appendix.



June was 2.5° F below normal; and July, August, September, and October were 2 to 3° F above normal. Temperatures at Safford were below normal every month with an April to October average of -2.4° F.

Two-hour relative humidity records with the daily maximum, minimum, and average relative humidities are given in table 3 for Phoenix and in table 4 for Safford.

The amount of rainfall and irrigations in inches at Phoenix is given in table 5 and at Safford in table 6. However, no measurable rain fell in our fields at Phoenix in August so there was approximately 1.12 inches less than normal. Safford, on the other hand, had 2.77 inches of rain during August (with 1.17 on September 1), to give almost 2 inches more than normal. Soil moisture at Phoenix, expressed as the percentage of available moisture at six soil depths, is given for each of the three irrigation treatments in table 7. Certain physical characteristics of the soil at Phoenix are given in table 8.

The average plant height in centimeters at weekly intervals is given in tables 9 and 10 for Safford and Phoenix, respectively; the average number of nodes per plant each week is given in tables 11 and 12.

The number of squares, abscissed squares, flowers, abscissed bolls, and harvested bolls per 40 plants in the wet, medium, and dry treatments is given in tables 13, 14, and 15, respectively, for Phoenix, and tables 16, 17, and 18, respectively, for Safford.

#### LITERATURE CITED

- (1) Bowen, H. D., Colwick, R. F., and Batchelder, D. G.  
1973. Computer simulation of crop production--potential and hazards. Agr. Engin. 54(10): 42-45.
- (2) Gutierrez, A. P., Falcon, L. A., Loew, W., and others.  
1975. An analysis of cotton production in California: a model for acala cotton and the effects of defoliators on its yield. Environ. Ent. 4: 125-136.
- (3) Kittock, D. L., and Pinkas, L. L. H.  
1971. Effect of pink bollworm on cotton seed and fibre. Cotton Grow. Rev. 48: 210-217.
- (4) \_\_\_\_\_ and Pinkas, L. L. H.  
1975. Relationship of seed/boll to other yield components and fiber quality of Pima cotton. Crop Sci. 15: 316-319.
- (5) McKinion, J. M., Baker, D. N., Hesketh, J. D., and Jones, J. W.  
1975. SIMCOT II: A simulation of cotton growth and yield. Pt. 4, pp. 27-82. In Computer Simulation of a Cotton Production System: Users Manual. U.S. Dept. Agr., Agr. Res. Serv. ARS S-52, 101 pp.
- (6) Stapleton, H. W.  
1970. Crop production in system simulation. Amer. Soc. Agr. Engin. Trans. 13(1): 110-113.
- (7) \_\_\_\_\_ Buxton, D. R., Watson, F. L., and others.  
1973. COTTON: a computer simulation of cotton growth. Ariz. Agr. Expt. Sta. Tech. Bul. 206, 124 pp.

APPENDIX TABLES  
Table 1.--Hourly temperatures for Phoenix, 1967

DAY	H O U R L Y												T E M P E R A T U R E S												C	MAX	MIN	AVER
110	10	9	9	6	5	5	10	13	17	18	19	20	21	22	22	21	21	19	17	16	15	15	13	12	22	5	14.8	
111	11	8	9	6	5	6	10	14	17	19	20	20	22	23	23	23	22	20	17	15	13	11	9	8	23	5	14.6	
112	8	6	6	6	6	5	10	15	18	19	20	22	21	22	21	23	22	20	18	17	16	14	12	9	23	5	14.8	
113	12	7	8	9	10	8	12	16	19	21	22	23	25	25	26	26	27	23	20	18	16	14	15	15	27	7	17.4	
114	12	10	9	7	5	8	13	17	20	22	23	25	24	24	24	24	24	22	20	18	17	16	15	15	25	5	17.2	
115	14	14	10	10	8	7	11	14	17	19	21	22	23	23	23	24	24	23	19	15	13	12	11	11	24	7	16.2	
116	10	10	9	9	8	10	14	17	21	23	26	27	29	30	30	32	30	25	22	19	17	13	12	32	8	19.7		
117	11	10	9	9	8	11	16	19	23	26	27	29	31	31	31	30	27	23	21	19	18	17	15	31	8	20.5		
118	11	13	9	9	11	15	19	22	24	25	26	27	28	29	29	29	28	25	22	20	19	18	16	13	29	9	20.3	
119	18	16	14	13	11	13	15	17	16	19	20	21	20	21	21	20	19	18	16	14	12	11	11	7	21	7	16.0	
120	6	5	4	3	6	8	11	13	16	19	20	21	22	22	22	23	22	21	20	17	14	14	12	11	10	23	3	14.2
121	11	8	6	5	6	8	14	16	19	21	22	23	24	24	25	24	24	23	20	16	14	11	9	8	25	5	15.9	
122	8	7	6	5	6	6	12	15	17	20	23	25	26	27	27	27	26	25	23	18	16	14	11	11	27	5	16.7	
123	11	9	8	8	7	9	12	16	20	23	26	28	28	29	30	29	29	28	24	20	17	16	15	13	30	7	19.0	
124	13	10	11	9	8	9	13	19	22	25	27	28	29	30	31	31	30	28	26	23	22	21	19	16	31	8	20.8	
125	20	20	15	13	11	12	15	21	23	24	25	27	28	28	27	27	26	25	23	21	19	18	17	15	28	11	20.8	
126	13	12	10	10	10	9	14	17	21	24	26	27	29	29	29	29	30	29	27	22	19	15	15	13	30	9	20.0	
127	13	11	11	10	9	12	17	20	22	26	29	30	32	34	34	35	34	33	33	27	20	20	19	17	35	9	22.7	
128	18	16	15	15	14	15	16	20	23	27	29	33	34	34	35	36	33	34	31	25	22	20	19	17	36	14	24.2	
129	16	15	14	14	14	15	17	21	24	28	29	32	33	35	36	35	34	31	30	29	27	27	26	26	36	14	25.3	
130	25	24	22	21	20	20	20	23	25	26	27	29	29	29	30	29	28	28	25	22	21	20	21	17	30	17	24.2	
131	16	14	13	12	11	10	15	20	23	25	26	27	28	28	29	28	28	26	23	20	18	18	15	15	29	10	20.3	
132	11	12	11	9	8	12	15	20	23	25	27	28	29	30	30	29	30	27	26	22	21	18	18	17	30	8	20.7	
133	17	17	16	14	12	10	16	21	23	25	27	29	29	30	30	29	29	28	25	23	21	20	17	17	30	10	21.9	
134	16	15	15	14	13	14	17	21	24	26	27	29	30	31	32	31	32	30	29	24	22	20	19	18	32	13	22.9	
135	17	23	18	15	14	13	19	24	28	30	32	33	34	35	35	36	35	34	30	26	23	19	18	18	36	13	25.4	
136	17	16	16	20	15	17	23	29	33	35	36	37	40	40	40	39	39	37	33	27	25	25	20	19	40	15	28.2	
137	18	18	17	16	15	17	20	26	31	32	34	35	36	37	36	38	34	33	32	29	28	26	25	23	38	15	27.3	
138	24	24	23	22	24	22	25	27	30	33	35	36	37	38	38	38	38	36	33	28	26	23	21	19	38	19	29.2	
139	20	17	16	15	15	18	20	23	28	32	34	38	38	39	40	38	36	35	33	29	27	24	20	22	40	15	27.4	
140	20	20	19	17	19	19	24	28	31	33	36	39	41	40	42	40	40	39	37	31	28	24	24	24	42	17	29.8	
141	22	22	25	23	18	22	27	30	33	36	37	39	40	41	42	43	41	38	35	32	30	29	27	27	43	18	31.6	
142	24	21	20	20	17	19	23	31	33	37	39	40	41	43	41	41	37	35	33	31	30	29	28	25	43	17	30.7	
143	28	21	21	20	21	21	25	30	32	32	34	35	34	34	33	32	32	31	30	27	27	24	22	23	35	20	27.9	
144	28	25	22	23	24	23	23	27	27	29	30	30	33	31	31	34	32	26	25	23	23	21	23	22	34	21	26.5	
145	23	21	21	20	21	22	23	25	25	29	30	33	34	33	25	27	26	25	23	23	22	20	19	34	19	24.8		
146	19	20	20	19	17	19	22	24	27	29	30	33	35	35	34	36	35	34	32	29	27	24	25	23	36	17	27.0	
147	22	21	18	17	17	18	21	27	28	30	30	37	37	34	33	35	33	30	28	25	24	24	23	21	37	17	26.4	
148	19	17	15	15	13	16	20	23	26	28	29	30	31	32	33	32	32	31	28	25	24	21	22	20	33	13	24.2	
149	17	17	16	16	15	15	18	21	24	26	27	29	29	30	30	30	30	28	27	22	20	20	20	18	30	15	22.7	
150	18	18	17	17	16	16	21	22	23	25	26	26	28	29	29	29	29	27	25	23	21	20	18	17	29	16	22.5	
151	17	15	14	15	14	17	19	22	24	26	27	28	29	30	31	31	30	28	26	23	21	18	19	21	31	14	22.7	
152	19	18	18	15	13	17	21	23	25	27	29	30	31	33	32	32	30	29	27	25	22	21	20	18	33	13	24.0	
153	17	16	16	15	14	19	22	25	28	30	31	33	34	35	36	36	34	32	29	27	25	23	24	22	36	14	26.0	
154	19	18	18	17	18	21	23	25	27	28	22	24	28	31	32	33	34	33	30	28	27	26	26	26	34	17	25.6	
155	25	23	22	22	21	23	27	29	31	33	35	36	37	38	38	39	36	33	31	30	28	26	25	25	39	21	29.7	
156	26	24	22	22	21	23	27	29	30	32	34	37	36	36	35	35	34	33	31	26	24	22	20	18	37	18	28.2	
157	16	16	15	14	13	15	19	24	27	29	30	31	32	33	34	34	32	31	29	26	24	22	20	19	34	13	24.4	
158	19	18	15	16	18	16	20	24	27	29	32	33	35	35	36	35	34	32	31	27	25	22	23	20	36	15	25.9	
159	18	18	16	15	15	18	21	25	28	31	32	34	35	35	35	37	35	34	31	27	27	24	24	20	37	15	26.5	
160	17	17	15	15	14	16	20	24	26	29	31	33	34	34	34	35	34	32	30	26	25	23	21	20	35	14	25.2	
161	18	17	17	15	14	16	20	23	25	28	29	30	31	32	32	31	31	29	27	25	22	19	19	17	32	14	23.6	
162	17	16	15	15	14	16	20	23	26	28	30	31	32	33	34	34	33	31	29	28	24	24	22	20	34	14	24.8	
163	19	17	16	16	15	15	21	24	32	29	30	32	32	33	33	35	34	32	28	26	26	24	21	21	35	15	25.5	
164	19	21	19	18	15	17	22	23	25	27	28	29	31	32	30	28	28	28	27	26	24	22	20	19	32	15	24.1	
165	18	17	16	15	15	18	20	23	26	28	29	30	31	32	32	31	31	30	27	26	23	20	19	18	32	15	24.0	
166	17	16	16	15	14	18	22	26	29	31	32	34	35	36	36	36	35	32	28	25	23	22	21	36	14	26.5		
167	21	20	18	18	17	15	20	24	27	30	32	35	37	38	37	37	37	35	33	31	27	24	27	24	38	15	27.7	
168	24	23	18	19	18	18	23	27	29	31	33	36	36	37	38	38	38	37	34	31	29	28	27	23	38	18	29.0	
169	22	22	21	22	22	22	21	21	20	19	20	21	21	22														



Table 1.--Hourly temperatures for Phoenix, 1967--Continued

DAY	H O U R L Y T E M P E R A T U R E S																								MAX	MIN	AVER	
175	22	22	20	25	20	22	25	29	32	35	36	37	38	39	40	35	36	36	34	32	31	30	32	30	40	20	30.7	
176	27	25	25	26	25	28	30	32	34	35	37	38	39	39	38	39	37	37	32	31	30	27	26	25	39	25	31.7	
177	24	23	23	23	24	25	28	28	30	32	34	36	34	35	36	37	37	37	36	33	32	29	28	26	37	23	30.4	
178	26	25	24	23	23	22	25	29	33	35	36	37	38	39	40	40	39	38	36	34	32	31	32	30	40	22	32.0	
179	28	26	26	24	23	22	26	30	33	36	38	38	39	40	40	40	39	36	34	32	28	26	25	40	22	32.0		
180	25	22	24	23	21	22	25	29	33	36	37	38	39	41	41	41	40	39	37	34	30	26	27	25	41	21	31.5	
181	25	22	22	21	21	23	26	29	33	35	37	38	40	41	41	40	40	38	37	34	31	29	27	26	41	21	31.5	
182	25	23	22	21	23	22	28	31	33	36	37	39	40	41	42	42	42	41	38	36	35	32	29	27	42	22	32.8	
183	26	24	23	23	23	24	28	31	32	36	38	40	41	41	42	43	42	40	37	34	36	34	30	43	23	33.7		
184	30	27	27	26	26	25	29	33	35	37	37	39	39	39	39	41	40	38	36	35	33	32	32	32	41	25	33.6	
185	30	28	27	25	25	27	27	31	34	37	37	37	39	39	39	39	38	37	35	34	32	31	30	30	39	25	32.8	
186	29	29	27	27	28	28	28	29	32	32	35	34	37	37	37	36	36	35	33	32	31	30	29	30	37	27	31.7	
187	29	28	26	25	25	27	29	30	30	29	31	34	34	34	35	36	34	33	32	30	29	29	28	28	36	25	30.2	
188	27	26	29	28	26	25	25	26	28	29	29	31	33	34	35	36	35	34	33	31	30	27	29	27	36	25	29.7	
189	26	25	24	24	23	27	29	32	34	35	36	38	39	39	39	38	38	36	35	34	33	31	31	30	39	23	32.3	
190	29	27	27	26	26	27	30	32	34	35	37	34	34	33	34	34	33	32	31	30	28	28	27	26	37	26	30.6	
191	26	26	26	25	24	27	29	30	32	34	35	37	37	38	39	37	37	36	35	34	31	30	32	24	39	24	31.7	
192	22	22	22	22	22	23	25	26	27	30	32	34	36	37	38	38	38	39	36	32	30	28	30	30	39	22	30.0	
193	28	29	29	25	26	26	27	28	30	33	35	36	37	38	39	37	36	34	33	30	29	28	27	39	25	31.5		
194	27	26	26	25	24	27	29	31	32	33	34	35	36	37	37	38	38	36	34	32	31	30	31	30	38	24	31.6	
195	30	29	27	29	26	29	28	30	33	34	36	37	38	39	40	39	37	34	33	31	30	28	27	28	40	26	32.2	
196	28	27	25	25	25	28	28	29	28	30	30	32	35	35	36	36	37	34	34	34	33	31	30	27	37	25	30.7	
197	28	28	27	26	28	28	29	32	32	35	37	37	38	39	39	35	36	35	33	32	29	26	24	24	39	24	31.5	
198	25	24	24	24	25	25	26	28	28	29	30	32	33	34	35	36	35	34	31	30	30	31	29	29	36	24	29.5	
199	26	25	25	24	25	24	27	30	32	33	35	36	37	37	38	37	36	33	32	30	30	27	26	25	38	24	30.4	
200	26	25	25	24	25	26	30	31	34	35	36	37	38	38	39	39	38	38	36	32	31	28	28	27	39	24	31.9	
201	27	25	23	23	22	26	27	30	33	35	37	38	40	41	40	41	40	37	32	32	34	34	33	41	22	32.7		
202	32	33	31	29	28	28	30	33	33	35	37	37	38	39	39	40	37	35	35	30	26	26	27	40	26	32.7		
203	23	24	23	24	24	25	27	28	30	31	33	34	35	36	30	34	34	33	31	31	31	29	28	27	36	23	29.4	
204	26	26	25	25	26	27	29	31	33	35	36	37	37	37	37	37	37	36	34	31	29	27	26	26	37	25	31.3	
205	25	25	26	25	25	27	29	32	34	36	37	38	39	40	40	39	37	36	34	33	31	30	30	27	40	25	32.3	
206	28	27	26	26	25	28	31	30	31	34	35	36	37	37	38	37	38	36	35	32	31	28	28	27	38	25	31.7	
207	26	27	26	26	24	25	27	29	32	33	34	33	32	34	31	33	33	33	32	31	29	28	28	28	34	24	29.7	
208	27	26	26	27	27	27	28	29	30	32	33	32	34	35	35	35	33	33	32	30	29	28	27	27	35	26	30.1	
209	27	26	26	25	25	26	29	31	32	34	35	36	35	36	36	36	36	36	35	32	30	29	28	27	36	25	31.2	
210	28	27	26	26	25	24	29	31	33	35	37	38	39	39	40	40	38	39	36	34	32	32	33	31	40	24	33.0	
211	27	25	26	25	25	26	27	29	31	32	35	35	34	35	36	37	35	35	33	32	31	33	33	31	37	25	31.2	
212	29	27	27	27	26	27	28	31	32	35	36	37	37	39	37	36	36	35	32	31	31	29	28	28	39	26	31.7	
213	27	27	27	26	25	27	28	30	32	34	36	36	37	38	39	38	37	36	33	31	29	28	29	28	39	25	31.6	
214	27	26	25	25	24	27	28	30	34	36	38	37	37	39	40	41	40	38	37	34	35	31	30	31	34	41	24	33.2
215	33	33	29	27	27	28	29	28	27	26	26	27	27	29	30	30	29	28	27	27	27	25	24	24	33	24	27.8	
216	24	25	24	25	26	27	30	32	35	36	37	38	36	35	37	37	37	36	32	30	29	30	28	30	38	24	31.5	
217	29	29	28	27	26	26	27	27	28	28	30	33	35	35	36	35	34	33	31	30	31	30	28	28	36	26	30.2	
218	26	26	25	25	24	27	29	31	33	34	35	36	35	36	38	37	35	34	33	32	29	28	27	27	38	24	30.9	
219	25	25	24	24	24	27	30	32	34	35	36	37	38	37	37	36	33	32	30	28	27	26	26	38	24	30.5		
220	27	26	25	24	26	27	29	32	32	34	36	37	37	38	37	37	36	33	31	30	30	31	29	27	38	24	31.3	
221	26	24	24	23	24	25	25	29	31	32	31	31	32	35	38	38	40	36	32	34	32	30	32	30	40	23	30.6	
222	28	28	27	28	27	26	29	31	34	33	34	34	36	36	37	36	37	34	33	32	30	29	29	29	37	26	31.5	
223	25	24	24	23	24	25	25	29	31	33	33	34	35	36	36	37	36	32	31	31	29	27	26	28	37	23	29.7	
224	26	25	26	25	25	26	30	31	33	34	35	36	36	37	38	37	37	35	32	31	30	30	29	28	38	25	31.3	
225	27	27	27	25	27	28	31	32	35	36	37	38	38	39	40	41	40	39	36	34	36	31	30	32	41	25	33.6	
226	29	27	26	26	27	28	30	30	32	34	35	37	38	40	39	34	32	34	31	30	29	27	28	27	40	26	31.3	
227	25	25	24	24	22	21	25	28	30	33	34	36	36	37	37	37	37	36	33	34	30	28	28	27	37	21	30.3	
228	25	23	24	24	23	22	27	29	31	32	33	34	35	36	37	36	35	35	33	29	30	28	27	26	37	22	29.7	
229	25	23	23	21	23	25	26	28	29	31	32	34	34	34	35	34	35	34	33	30	28	28	26	25	35	21	29.0	
230	24	23	23	22	23	24	27	30	32	33	35	36	36	37	38	37	37	35	29	27	29	27	26	25	38	22	29.8	
231	24	23	22	22	21	22	28	28	30	32	35	36	37	38	38	37	38	37	35	35	32	31	29	31	38	21	30.9	
232	29	28	26	26	23	24	27	28	30	33	34	36	38	39	40	39	38	38	36	33	30	29	28	25	40	23	31.5	
233	25	24	23	24	23	22	26	29	31	33	34	37	38	39	40	40	39	35	33	32	31	29	28	27	40	22	30.9	
234	28	27	24	22	22	24	26																					

Table 1.--Hourly temperatures for Phoenix, 1967--Continued

DAY	H O U R L Y T E M P E R A T U R E S																								MAX	MIN	AVER
240	27	30	27	27	25	25	28	30	33	35	36	37	39	40	39	38	38	38	35	33	32	34	33	33	40	25	33.0
241	30	28	26	27	25	25	28	31	33	36	37	38	39	40	40	39	38	37	35	32	30	28	27	28	40	25	32.4
242	26	25	25	27	23	25	27	28	29	28	30	31	31	33	37	37	37	36	34	31	29	28	29	30	37	23	29.8
243	29	26	26	26	28	25	28	30	31	32	33	34	35	36	35	34	33	32	29	30	30	29	27	28	36	25	30.2
244	28	28	27	26	24	24	26	26	27	28	29	30	29	30	29	29	30	28	27	27	26	26	25	25	30	24	27.2
245	26	25	25	24	24	23	23	24	26	27	29	30	29	29	27	25	24	23	23	22	22	22	22	22	30	22	24.8
246	22	22	22	22	22	22	22	24	25	27	28	29	30	31	31	32	30	28	26	25	24	23	23	23	32	22	25.5
247	22	22	22	22	21	22	25	28	29	31	32	33	34	34	35	34	33	32	29	27	27	26	26	26	35	21	28.0
248	26	26	24	24	23	23	22	23	26	29	31	33	34	35	34	32	32	31	28	27	27	26	25	24	35	22	27.7
249	23	22	22	22	22	23	26	29	31	32	34	35	35	31	34	32	32	31	28	26	24	25	24	23	35	22	27.7
250	23	22	21	21	21	24	27	29	31	32	33	34	35	35	36	35	34	33	31	28	27	26	25	25	36	21	28.7
251	24	24	25	24	22	23	26	29	31	33	34	35	35	35	35	35	34	33	30	27	27	26	25	23	35	22	29.0
252	23	22	22	21	21	21	26	29	31	34	35	36	37	37	37	36	35	33	31	30	29	28	28	28	37	21	29.6
253	27	26	25	23	22	22	26	30	32	34	35	36	36	36	37	36	35	33	29	28	26	25	26	26	37	22	29.6
254	26	23	22	21	22	22	27	28	30	33	34	36	36	37	36	35	35	33	30	29	28	26	25	25	37	21	29.1
255	24	23	22	23	21	22	27	30	32	34	35	36	37	36	37	35	34	32	30	29	28	26	24	23	37	21	29.2
256	23	22	21	21	20	21	26	28	32	34	35	36	36	36	36	35	35	32	29	28	27	27	24	22	36	20	28.6
257	20	21	19	20	20	22	25	28	30	32	33	35	35	35	35	35	33	30	25	23	20	19	17	17	35	17	26.2
258	16	15	16	14	14	15	19	21	25	28	31	33	34	35	35	34	34	32	27	25	21	19	18	19	35	14	24.2
259	17	16	17	16	16	15	18	22	27	30	31	34	35	35	36	36	34	33	28	26	24	21	22	21	36	15	25.4
260	20	19	17	18	19	17	21	26	28	31	33	34	35	36	36	35	35	33	29	26	26	25	24	21	36	17	26.8
261	20	19	18	18	16	18	21	24	28	30	32	33	34	34	34	35	33	31	27	26	25	24	22	21	35	16	26.0
262	20	19	19	19	17	18	21	23	27	29	30	33	32	33	32	32	31	29	27	25	24	23	22	21	33	17	25.2
263	20	18	19	17	17	18	22	23	26	31	33	34	35	36	36	37	36	34	30	27	26	25	24	24	37	17	27.0
264	23	23	22	21	20	21	24	28	31	31	33	35	37	39	39	39	36	34	31	30	30	28	28	26	39	20	29.5
265	25	25	25	25	25	22	24	30	32	35	36	37	38	40	39	37	36	35	32	31	29	28	26	26	40	22	30.7
266	25	24	24	23	21	21	23	27	31	34	37	38	38	38	38	37	34	30	33	31	29	29	27	27	38	21	30.0
267	25	24	22	21	22	21	25	31	32	34	36	38	39	36	33	31	29	28	27	27	26	25	23	23	39	21	28.2
268	23	21	19	19	19	19	23	27	29	31	32	33	34	35	34	34	32	31	27	24	25	24	22	21	35	19	26.6
269	20	20	20	19	19	19	23	26	29	31	32	33	34	34	35	34	32	30	28	26	25	24	24	22	35	19	26.6
270	22	20	21	22	22	20	24	29	30	32	33	34	35	35	35	35	32	30	29	27	25	24	22	21	35	20	27.5
271	21	21	20	21	20	19	24	25	29	30	32	33	34	35	34	34	32	30	26	24	24	23	22	21	35	19	26.4
272	21	20	20	19	20	20	22	26	28	31	33	34	35	37	38	37	35	31	28	27	25	24	22	22	38	19	27.3
273	24	22	21	21	19	19	23	28	30	32	34	35	36	37	36	36	35	33	31	30	29	27	26	25	37	19	28.7
274	25	23	22	21	21	23	25	28	31	33	35	35	36	35	37	36	33	31	30	29	28	26	26	25	37	21	28.9
275	23	22	22	21	20	20	25	28	29	31	32	34	35	35	35	34	33	31	29	27	25	25	25	24	35	20	27.7
276	24	21	21	20	20	21	20	21	21	21	22	23	24	26	26	26	24	22	22	20	20	20	19	26	19	21.9	
277	19	18	18	17	17	17	18	22	26	28	29	31	32	32	32	32	28	26	24	22	21	20	21	20	32	17	23.8
278	20	20	19	19	18	20	23	25	28	30	32	33	34	35	34	34	32	28	25	24	23	23	21	20	35	18	25.8
279	19	19	18	17	16	16	19	23	25	27	29	31	32	32	31	30	26	23	21	19	16	15	15	14	32	14	22.2
280	16	14	11	11	15	16	20	26	28	29	31	32	32	31	32	30	25	22	20	17	16	17	14	15	32	11	21.7
281	17	14	11	12	11	15	20	24	27	30	31	32	33	33	33	31	25	22	19	18	15	16	13	16	33	11	21.6
282	13	11	12	12	13	14	18	20	22	26	28	31	32	34	32	31	31	26	23	20	17	16	17	16	34	11	21.5
283	13	12	12	12	11	13	16	21	24	27	29	31	32	34	33	33	29	25	21	20	18	18	20	15	34	11	21.6
284	16	15	15	13	14	14	17	23	26	29	31	32	33	34	33	33	31	26	23	21	20	19	18	18	34	13	23.1
285	17	17	17	14	15	16	20	24	26	28	30	32	33	34	35	34	32	27	25	23	21	21	18	17	35	14	24.0
286	17	15	13	15	15	14	16	21	25	27	30	33	34	35	35	34	31	27	25	22	19	18	18	17	35	13	23.2
287	16	18	15	15	14	14	19	23	27	29	31	33	35	35	35	34	32	27	26	25	20	20	18	18	35	14	24.1
288	16	17	16	15	16	14	17	22	26	29	30	31	32	34	35	34	31	26	24	20	20	16	15	13	35	13	22.9
289	12	13	11	14	13	17	19	23	26	27	29	30	30	31	31	30	30	24	20	18	16	15	15	14	31	11	21.1
290	13	12	13	11	10	12	17	20	24	28	30	32	33	34	34	33	31	25	20	19	18	18	17	17	34	10	21.7
291	18	18	16	16	15	14	19	24	28	31	33	34	34	35	35	33	29	24	20	19	18	17	16	14	35	14	23.3
292	14	12	11	15	14	15	19	22	26	29	30	32	33	34	34	33	30	24	23	20	16	16	16	16	34	11	22.2
293	14	13	11	11	14	12	15	22	24	26	30	32	33	34	35	35	31	24	21	20	17	16	19	15	35	11	21.8
294	14	12	13	12	13	15	16	21	24	27	29	31	33	34	34	33	30	25	22	21	18	17	16	18	34	12	22.0
295	19	17	15	16	16	16	17	20	24	26	28	30	31	32	32	32	29	24	21	20	18	17	16	15	32	15	22.1
296	15	13	13	13	13	12	13	16	20	24	27	29	31	32	31	31	29	24	20	19	17	15	15	15	32	12	20.3
297	14	13	12	11	11	12	13	18	22	24	27	29	31	32	32	32	29	24	21	19	19	17	17	14	32	11	20.5
298	15	13	12	12	12	11	13	17	21	25	27	29	31	32	33	32	30	24	22	17	18	16	16	15	33	11	20.5
299	14	15	15																								



Table 1.--Hourly temperatures for Phoenix, 1967--Continued

DAY	H O U R L Y T E M P E R A T U R E S C																								MAX	MIN	AVER	
305	10	10	10	8	8	7	9	15	19	21	24	26	27	28	29	29	25	19	18	15	14	13	12	11	29	7	17.0	
306	10	10	9	9	9	8	10	14	19	22	24	26	28	29	28	28	26	21	18	15	15	14	14	12	29	8	17.4	
307	13	11	10	10	10	11	14	14	18	22	23	26	27	28	29	28	25	19	17	15	12	13	12	11	29	10	18.2	
308	11	10	10	9	11	11	12	16	19	22	24	25	27	28	29	29	26	21	17	16	16	16	15	15	29	9	18.1	
309	15	12	12	13	13	13	12	15	19	23	25	26	27	28	29	28	25	22	22	20	19	19	18	17	29	12	19.7	
310	17	16	17	16	15	16	17	15	22	23	26	28	29	28	28	28	26	21	18	19	20	20	17	16	29	15	20.7	
311	14	12	14	12	12	12	13	18	22	24	25	26	27	28	27	27	25	20	16	15	15	15	14	13	28	12	18.6	
312	11	14	11	12	12	12	13	18	22	24	26	27	28	28	28	28	25	19	17	16	14	13	15	13	28	11	18.6	
313	13	11	14	14	14	12	13	13	17	21	24	26	27	27	28	28	27	24	19	16	15	12	12	11	10	28	10	18.1
314	10	9	7	8	9	7	10	12	17	21	23	25	27	29	28	28	27	24	19	16	14	13	12	11	11	29	7	16.2
315	10	9	9	9	8	8	9	14	19	22	25	27	29	31	31	31	27	21	20	17	15	14	12	14	31	8	18.0	
316	15	16	12	11	10	14	15	19	23	26	30	31	33	34	33	33	28	24	21	20	19	19	16	14	34	10	21.5	
317	15	14	12	12	13	13	13	16	22	25	29	30	31	32	33	32	30	22	17	15	16	15	13	12	33	12	20.1	
318	15	16	10	11	13	12	14	17	19	23	26	29	30	31	32	31	26	22	19	16	15	13	12	11	32	10	19.4	
319	10	10	10	12	9	10	9	12	16	21	25	27	29	30	31	31	27	21	16	16	13	12	13	11	31	9	17.5	
320	10	11	10	14	12	12	10	15	17	19	21	23	25	26	27	27	24	19	17	16	14	15	13	12	27	13	17.0	
321	12	11	10	10	8	9	10	13	18	22	24	26	27	29	29	29	27	21	18	15	15	15	14	13	29	8	17.7	
322	12	11	10	9	11	11	12	16	19	22	24	26	28	29	30	29	27	21	19	17	15	16	14	12	30	9	18.3	
323	13	13	12	12	8	10	11	14	18	21	24	25	27	27	27	26	24	23	22	20	17	18	15	12	27	8	18.3	
324	11	12	11	11	10	9	9	11	16	19	21	23	24	24	25	24	23	19	16	14	14	12	13	11	25	9	15.9	
325	11	10	11	10	10	10	10	13	15	17	20	22	23	23	23	22	21	19	18	17	15	15	14	14	23	10	16.0	
326	14	14	13	14	14	14	14	14	15	17	18	19	19	21	21	20	18	16	15	15	13	12	13	12	21	12	15.6	
327	11	11	11	12	11	11	11	13	14	16	17	18	20	19	19	18	17	15	14	13	12	11	11	10	20	10	14.0	
328	10	9	9	8	9	9	8	12	15	17	19	20	21	21	22	21	20	16	14	13	11	11	11	9	22	8	14.0	
329	8	8	8	8	7	7	8	12	16	18	19	21	22	23	23	23	21	17	14	13	12	11	11	10	23	7	14.2	
330	11	11	10	10	11	11	12	14	16	19	20	23	24	25	24	24	23	21	19	19	18	16	16	15	25	10	17.2	

Table 2.--Hourly temperatures for Safford, 1967

DAY	H O U R L Y T E M P E R A T U R E S C																								MAX	MIN	AVER
138	17	16	17	15	14	14	18	21	26	26	29	31	32	33	31	30	29	28	24	22	18	15	14	12	33	12	22.2
139	13	12	12	12	11	11	15	19	23	27	31	32	33	34	34	33	32	30	28	27	24	21	18	17	34	11	22.9
140	15	14	12	12	11	13	19	24	27	30	31	33	34	35	35	34	34	33	30	25	24	22	18	15	35	11	24.2
141	14	16	21	20	19	19	20	22	24	26	27	29	30	31	32	33	33	32	29	23	23	18	20	18	33	14	24.1
142	19	18	16	15	14	15	21	25	27	28	30	32	33	34	33	33	32	31	31	26	23	21	18	16	34	14	24.6
143	15	15	18	17	17	16	21	26	29	31	33	34	35	36	36	35	32	29	28	27	25	23	20	19	36	15	25.7
144	20	20	23	23	23	21	21	22	26	27	29	30	31	32	33	31	22	18	17	17	16	16	16	15	33	15	22.9
145	15	14	14	14	13	14	16	17	16	14	16	19	21	24	24	20	22	21	19	18	14	13	12	12	24	12	16.7
146	11	11	12	10	10	10	13	19	21	24	26	29	29	30	31	31	31	28	25	23	21	20	18	16	31	10	20.8
147	15	14	13	12	11	14	21	24	27	29	30	31	32	33	32	31	31	29	27	25	24	24	22	20	33	11	23.8
148	19	17	16	12	13	14	18	23	26	27	28	29	30	31	31	31	29	27	23	21	20	20	18	20	31	12	22.6
149	19	16	16	13	11	13	19	22	25	26	26	27	28	29	29	28	27	25	24	22	21	22	19	18	29	11	21.9
150	17	17	16	15	16	17	18	19	22	21	21	23	24	24	24	25	24	23	21	19	17	15	13	12	25	12	19.3
151	10	12	11	11	10	16	20	21	23	24	25	26	28	29	30	29	29	27	25	20	20	17	15	14	30	10	20.5
152	13	13	17	15	15	18	21	22	24	26	27	28	29	30	31	32	31	30	26	23	21	21	20	17	32	13	22.9
153	17	15	12	11	11	12	18	23	27	30	29	31	33	33	32	33	32	31	27	25	21	22	22	23	33	11	23.8
154	24	24	21	21	21	22	24	25	26	30	31	32	33	34	33	32	30	29	28	25	25	23	20	20	34	20	26.4
155	18	18	18	18	17	21	23	27	25	27	27	31	31	32	30	31	30	29	28	25	23	23	22	22	32	17	24.8
156	22	23	22	22	21	22	25	26	27	29	32	33	34	34	35	34	35	32	30	27	26	25	24	22	35	21	27.6
157	21	19	15	13	11	15	20	23	26	28	30	32	33	34	35	34	32	31	28	25	23	20	22	20	35	11	24.6
158	19	17	16	13	8	10	17	22	24	27	28	29	31	31	32	33	34	32	29	26	25	21	21	19	34	8	23.5
159	17	14	10	10	9	11	19	24	27	29	31	32	33	34	35	35	34	32	28	24	23	24	18	20	35	9	23.9
160	15	12	10	9	8	13	21	24	27	29	30	31	32	33	33	34	32	31	28	26	24	23	22	20	34	8	23.6
161	19	15	14	12	8	11	18	22	24	26	28	28	30	30	31	30	29	27	25	22	20	19	17	15	31	8	21.7
162	13	13	12	10	8	10	17	20	23	26	27	27	28	29	30	30	30	29	26	23	21	17	15	13	30	8	20.7
163	11	12	10	10	9	10	18	24	26	27	28	29	30	31	32	33	32	31	29	26	25	23	22	20	33	9	22.8
164	22	19	16	18	19	21	23	25	26	28	30	31	31	31	32	33	32	31	29	27	26	25	23	22	33	16	25.8
165	21	20	19	17	16	16	20	23	25	27	28	29	30	30	31	30	30	29	26	24	23	22	20	20	31	16	24.0
166	19	18	13	12	11	15	19	21	23	26	28	29	30	31	31	31	32	31	29	26	24	22	19	18	32	11	23.2
167	15	14	12	11	10	12	19	24	27	29	31	32	34	35	36	36	36	35	33	29	27	26	25	21	36	10	25.4
168	17	15	14	13	15	15	22	26	28	29	32	33	35	36	36	36	37	35	33	32	30	28	26	25	37	13	27.0

Table 2.--Hourly temperatures for Safford, 1967--Continued

DAY	H O U R L Y																								T E M P E R A T U R E S												C			MAX	MIN	AVER
169	24	24	23	23	21	21	20	23	25	27	29	31	33	35	35	36	35	29	22	22	22	22	21	22	21	36	21	26.1														
170	20	20	21	20	19	20	23	25	27	29	29	27	32	33	33	34	33	32	31	26	25	24	25	23	24	34	19	26.1														
171	24	23	23	21	20	21	25	27	28	29	31	32	34	35	36	35	34	34	32	30	27	27	26	25	36	20	28.3															
172	23	22	20	17	16	15	20	27	30	32	34	35	35	36	37	37	37	35	31	29	27	27	26	22	37	15	27.9															
173	21	17	16	15	14	18	25	29	32	34	36	37	38	40	39	39	38	36	33	30	31	28	27	28	40	14	29.2															
174	27	27	24	21	20	23	27	31	33	34	36	37	37	38	38	36	36	34	31	28	28	26	27	26	38	20	30.2															
175	25	25	23	21	20	22	24	26	28	29	28	26	23	23	26	27	27	26	24	22	21	20	19	19	29	19	23.9															
176	17	18	17	17	17	21	24	26	29	30	32	33	34	35	36	36	35	34	31	28	28	27	27	27	36	17	27.5															
172	25	25	24	23	23	24	25	27	29	31	22	32	34	35	35	36	34	33	22	31	28	28	28	27	36	22	28.4															
178	25	25	23	22	24	24	28	20	32	33	35	22	36	33	36	32	35	24	32	31	28	28	28	27	36	20	28.5															
179	27	25	24	23	23	24	27	29	31	22	34	35	35	32	32	22	35	34	32	31	28	28	28	26	35	22	28.6															
180	25	24	24	20	18	20	22	30	22	33	34	22	33	38	38	33	36	35	33	31	30	22	28	26	38	18	28.2															
181	24	25	23	22	22	22	22	28	28	21	22	34	22	32	38	22	38	32	32	28	22	28	28	25	38	21	26.7															
182	23	22	24	23	21	23	38	31	23	24	35	32	28	40	41	40	39	23	22	32	31	20	22	24	41	20	28.4															
182	24	22	20	18	18	22	29	22	34	35	38	38	41	42	42	42	40	40	37	34	33	32	28	26	42	18	31.5															
184	28	22	22	22	21	25	29	22	34	35	26	33	38	39	38	37	32	31	29	28	28	26	22	24	39	21	28.8															
185	24	23	22	20	19	24	27	31	32	33	35	35	36	38	37	37	34	32	31	30	28	26	27	26	38	19	29.5															
186	25	27	26	25	24	25	25	27	28	30	32	33	35	36	37	38	35	32	28	26	27	28	24	25	38	24	29.1															
187	27	26	25	24	24	23	26	29	31	32	33	34	35	36	37	36	35	34	28	28	25	25	23	23	37	23	29.1															
188	24	24	22	22	22	23	22	24	23	27	28	29	27	29	29	27	25	25	25	24	24	22	22	21	29	21	24.6															
189	21	20	19	19	19	18	20	22	26	28	30	32	33	34	35	35	35	34	33	32	30	28	23	23	35	18	27.0															
190	23	23	23	23	22	23	25	26	28	30	32	32	34	35	36	36	35	32	26	23	22	23	23	21	36	21	27.3															
191	22	21	20	19	18	21	21	24	26	27	30	32	33	35	36	37	37	36	35	32	31	29	22	21	37	18	27.7															
192	22	21	21	21	20	20	22	24	26	27	30	32	33	35	36	37	37	34	31	30	30	26	25	26	37	20	27.7															
193	24	23	23	23	22	21	20	26	28	30	33	34	35	36	37	37	36	35	32	30	31	29	28	28	37	20	29.2															
194	27	26	24	22	21	22	26	28	31	32	33	35	36	36	37	36	36	30	28	27	24	24	24	23	37	21	28.1															
195	24	24	23	23	23	24	25	26	28	28	30	31	32	33	33	36	35	33	30	27	26	25	25	24	36	23	27.8															
196	22	21	20	19	21	25	28	30	31	33	34	35	37	37	35	34	33	31	30	29	27	26	25	25	37	19	28.7															
197	25	24	22	22	23	24	26	27	30	31	33	33	34	35	20	23	24	25	20	20	20	20	20	35	20	25.0																
198	19	19	18	19	20	20	22	23	24	25	27	28	29	29	29	27	26	25	25	24	24	23	24	24	29	18	23.9															
199	23	20	20	19	21	23	26	27	29	32	32	33	34	35	35	25	27	26	25	24	23	23	21	21	35	19	26.0															
200	20	21	19	19	18	18	21	24	25	30	32	33	33	35	35	34	32	30	29	28	25	25	23	23	35	18	26.3															
201	24	24	22	22	22	25	28	29	30	33	34	35	35	36	37	23	23	24	24	26	24	24	21	21	37	21	26.9															
202	21	22	22	22	21	24	26	27	28	30	31	32	32	33	35	35	34	31	30	28	26	27	25	24	35	21	27.7															
203	21	20	23	26	20	22	23	24	27	31	31	32	32	31	31	32	30	29	29	28	27	25	24	25	32	20	26.8															
204	24	24	24	22	20	23	25	28	29	29	30	31	33	34	34	33	31	30	30	28	27	27	27	26	34	20	27.9															
205	25	23	23	22	20	23	25	28	30	31	33	34	36	34	35	29	25	25	24	25	24	23	23	22	36	20	26.7															
206	22	24	22	20	20	24	25	27	29	31	32	33	34	35	36	35	33	32	30	30	29	29	28	26	36	20	28.6															
207	25	26	23	23	23	23	25	26	28	32	33	33	34	33	31	30	31	31	29	29	28	27	26	25	34	23	28.1															
208	25	22	22	21	21	22	22	24	27	29	30	31	32	32	32	32	29	29	28	28	25	24	24	24	32	21	26.5															
209	23	22	22	21	22	22	23	25	27	29	30	31	32	33	33	33	33	32	30	28	28	28	27	26	33	21	27.5															
210	25	22	22	21	21	20	23	25	29	29	30	31	33	34	34	36	27	27	25	26	25	23	22	22	36	20	26.3															
211	22	22	22	20	21	22	23	27	29	30	31	33	32	32	33	31	29	29	28	28	26	24	23	22	33	20	26.6															
212	22	21	20	20	21	23	26	28	30	31	32	33	32	33	33	28	28	27	27	26	25	24	23	23	33	20	26.5															
213	22	22	22	21	20	23	24	26	29	30	31	34	34	34	34	33	33	32	32	31	30	28	26	24	34	20	28.1															
214	24	25	24	23	23	22	25	27	29	30	33	34	35	38	37	36	35	30	30	27	26	26	24	25	38	22	28.7															
215	24	24	24	24	23	23	24	27	29	31	33	35	36	33	32	30	24	22	22	22	22	22	22	22	36	22	26.3															
216	21	21	20	21	20	21	24	26	27	24	25	25	29	30	31	28	28	28	24	22	22	22	21	21	31	20	24.2															
217	21	21	21	21	20	22	24	26	27	28	30	32	33	34	33	33	31	29	29	21	21	21	21	21	34	20	25.8															
218	21	20	20	21	20	21	22	24	26	28	29	30	31	32	32	31	30	28	28	26	26	25	24	22	32	20	25.7															
219	22	21	20	20	21	23	26	28	29	31	31	32	33	33	31	32	32	30	27	26	24	24	23	22	33	20	26.7															
220	21	21	21	20	20	21	26	28	30	31	32	34																														



Table 2.--Hourly temperatures for Safford, 1967--Continued

DAY	H O U R L Y																								T E M P E R A T U R E S												C	M A X M I N A V E R		
234	19	18	17	16	17	18	23	27	28	30	32	33	34	35	35	35	32	30	28	26	26	23	22	20	35	16	26.0													
235	20	23	23	20	19	18	20	25	28	30	32	33	34	35	36	35	24	23	24	25	23	20	20	18	36	18	25.3													
236	18	18	17	16	16	18	22	25	28	29	31	33	34	35	35	36	34	33	27	25	22	21	19	18	36	16	25.4													
237	18	17	17	16	16	20	22	26	29	31	33	34	35	36	36	35	34	25	27	26	22	21	20	18	36	16	25.6													
238	17	16	15	15	16	22	23	27	29	31	32	34	35	34	34	33	33	31	26	25	24	30	24	24	35	15	26.3													
239	22	21	21	20	23	23	25	27	28	30	31	32	32	32	32	31	29	28	29	25	26	26	22	21	32	20	26.5													
240	23	22	21	21	20	21	24	26	29	31	32	33	34	35	34	29	30	28	28	26	23	23	20	20	35	20	26.4													
241	20	22	20	18	20	21	25	27	28	30	32	34	34	35	34	35	34	29	27	25	21	19	17	16	35	16	26.0													
242	16	17	16	16	17	16	20	25	28	30	31	31	32	32	31	30	28	27	23	21	23	23	20	21	32	16	23.9													
243	22	19	19	18	18	20	21	23	23	25	26	25	27	27	26	26	25	25	24	22	23	22	22	21	27	18	22.9													
244	21	20	20	18	18	19	18	19	20	20	22	21	23	21	21	20	21	20	20	20	20	20	20	20	23	18	20.1													
245	20	19	19	19	19	19	20	22	24	24	27	28	28	26	28	27	25	24	22	22	22	21	20	20	28	19	22.7													
246	19	20	20	20	20	21	22	23	25	27	28	30	31	31	30	30	29	29	25	24	24	23	23	21	31	19	24.8													
247	20	19	19	17	17	19	22	24	27	29	31	32	33	34	35	34	28	25	23	27	24	23	22	21	35	17	25.2													
248	21	21	21	20	18	20	22	24	24	25	26	26	26	28	27	27	28	25	21	22	20	22	20	18	17	28	17	22.7												
249	16	17	16	16	15	15	20	24	25	27	28	30	30	31	30	31	30	26	23	21	24	22	21	20	31	15	23.2													
250	19	18	17	17	17	18	22	24	26	27	29	30	32	32	32	29	25	24	24	23	22	20	18	18	32	17	23.5													
251	18	17	16	16	16	18	22	25	28	29	30	31	32	32	30	29	27	26	24	22	20	19	18	17	32	16	23.4													
252	17	16	16	15	15	17	21	26	28	30	31	32	33	31	34	33	29	28	26	25	24	24	22	21	34	15	24.7													
253	21	20	19	19	19	21	24	26	28	30	31	33	33	34	34	33	23	21	20	20	20	20	21	19	34	19	24.5													
254	18	18	17	17	18	20	23	24	26	28	29	30	32	33	33	32	29	25	23	21	21	20	20	19	33	17	24.0													
255	20	19	18	17	17	21	24	27	29	32	32	33	33	33	32	30	26	24	23	20	22	21	21	23	33	17	24.9													
256	22	20	18	17	15	15	18	22	27	29	30	31	32	33	33	32	31	29	26	25	22	19	18	16	33	15	24.2													
257	15	15	14	14	14	13	17	22	25	27	28	30	31	31	31	30	26	26	24	20	18	17	16	14	31	13	21.6													
258	14	14	12	12	11	12	17	22	25	27	29	30	31	32	32	32	31	26	21	22	23	22	19	17	32	11	22.2													
259	17	18	17	17	14	15	20	23	24	26	28	28	27	27	22	20	20	19	17	19	18	17	17	15	28	14	20.2													
260	16	15	14	15	15	15	19	21	24	26	27	29	30	31	31	31	30	27	21	20	18	17	17	15	31	14	21.8													
261	14	13	13	12	12	13	19	23	25	27	30	31	32	33	33	32	31	26	23	20	19	20	17	16	33	12	22.2													
262	14	15	14	15	15	16	21	24	27	29	30	31	32	32	32	31	29	26	24	20	23	19	18	18	32	14	23.1													
263	17	16	15	14	14	15	19	23	26	28	29	31	33	34	34	33	33	30	24	21	20	19	19	19	34	14	23.6													
264	18	18	18	20	19	18	23	25	28	29	30	29	32	32	32	32	31	29	26	23	20	18	18	18	32	18	24.4													
265	19	18	17	15	15	15	20	24	26	27	29	29	30	31	30	30	29	24	21	20	19	18	17	16	31	15	22.4													
266	16	15	15	17	18	18	21	24	26	28	30	30	31	30	31	31	29	25	23	21	20	20	20	19	31	15	23.2													
267	21	24	21	20	20	20	18	19	22	22	21	21	19	22	21	18	18	17	17	17	17	17	16	24	16	19.4														
268	15	16	16	16	15	16	16	17	19	22	23	22	20	21	20	21	20	19	19	18	18	17	17	16	23	15	18.3													
269	16	16	15	14	15	16	19	21	23	25	26	27	28	29	29	29	25	22	20	18	18	18	17	16	29	14	20.9													
270	16	15	17	18	18	18	19	21	22	21	22	22	23	23	23	22	21	19	19	18	15	14	13	13	23	13	18.8													
271	12	14	12	13	12	14	18	20	21	23	24	25	26	26	26	25	22	18	17	14	13	14	13	13	26	12	18.1													
272	11	12	12	12	15	18	21	23	25	26	27	28	28	29	29	26	19	17	15	14	15	14	14	14	29	11	19.3													
273	13	14	14	14	12	13	16	20	24	26	28	29	31	30	29	28	27	21	19	17	16	15	15	13	31	12	20.2													
274	13	14	13	13	13	12	16	22	25	28	29	30	30	31	32	29	27	24	22	19	18	17	17	16	32	12	21.3													
275	18	17	16	16	16	16	18	21	25	27	28	30	31	30	28	26	24	23	20	19	19	17	18	18	31	16	21.7													
276	18	17	19	18	16	16	19	19	20	21	24	25	20	16	17	17	17	17	16	16	15	15	14	25	14	17.8														
277	13	12	12	11	11	12	15	19	20	23	25	26	27	28	28	28	26	22	20	19	17	16	16	15	26	11	19.2													
278	15	14	14	14	14	17	20	22	24	26	29	30	32	32	33	32	29	25	23	22	22	21	19	18	33	14	22.8													
279	15	14	13	12	11	14	20	22	24	26	26	27	28	28	27	26	24	21	18	17	18	18	14	15	28	11	19.9													
280	13	13	10	8	6	6	12	17	21	23	24	25	26	27	26	25	21	15	12	10	9	8	6	6	27	6	15.4													
281	6	6	6	5	4	6	13	19	21	24	26	27	28	29	28	27	22	16	13	11	11	9	8	9	29	4	15.6													
282	8	7	6	5	6	9	16	20	23	25	27	29	29	30	29	27	21	17	15	14	13	12	10	9	30	5	17.0													
283	9	8	7	7	6	10	18	21	23	26	27	28	29	29	28	26	21	17	19	17	17	16	14	12	29	6	18.1													
284	12	12	12	11	11	14	18	21	22	24	25	26	27	28	28	27	19	16	14	12	11	11	10	9	28	9	17.5													
285	10	10	11	1																																				

Table 2.--Hourly temperatures for Safford, 1967--Continued

DAY	H O U R L Y T E M P E R A T U R E S C																											MAX	MIN	AVER
299	4	6	5	4	4	4	6	13	18	21	23	26	27	28	28	26	24	21	15	12	11	8	7	6	28	4	14.5			
300	6	5	5	5	5	6	10	14	18	22	24	26	27	27	27	27	25	20	15	12	10	9	7	7	27	5	15.0			
301	6	5	5	5	5	4	4	11	17	21	23	24	25	26	27	26	25	21	20	15	16	18	19	18	27	4	16.1			
302	18	17	16	15	17	16	15	17	18	18	18	19	20	19	20	18	17	14	12	9	10	8	6	4	20	4	15.0			
303	7	8	8	4	3	5	2	7	10	12	14	15	16	17	17	17	16	12	9	7	4	3	1	0	17	0	8.9			
304	0	0	0	0	-1	-1	0	5	11	15	16	18	19	20	21	21	20	13	12	9	6	5	4	3	21	-1	9.0			
305	2	1	1	1	1	0	1	7	13	17	20	21	22	24	25	25	24	21	17	17	16	14	11	10	25	0	13.0			
306	6	5	4	4	2	3	3	8	15	19	21	23	24	24	25	25	24	21	19	17	18	17	14	12	25	2	14.7			
307	11	8	7	8	4	8	8	11	13	14	15	16	17	18	18	18	17	12	11	9	9	10	7	6	18	4	11.5			
308	5	4	4	3	3	1	1	3	11	14	16	18	19	21	22	22	20	15	10	7	7	6	5	4	22	1	10.0			
309	4	4	4	3	3	3	2	8	13	15	19	20	20	22	21	20	18	16	15	12	10	10	10	9	22	2	11.7			
310	10	12	10	9	9	9	10	11	15	17	21	22	22	22	21	20	19	15	14	16	11	10	11	10	22	9	14.4			
311	7	6	8	6	6	6	8	10	14	15	16	18	19	19	19	19	16	13	13	9	8	7	7	8	19	6	11.5			
312	5	6	6	6	5	4	5	9	13	15	17	19	20	21	21	21	20	13	11	8	8	7	7	6	21	4	11.4			
313	6	7	6	5	4	6	4	9	14	17	19	21	23	23	24	22	21	15	10	8	6	5	3	4	24	3	11.7			
314	2	2	1	1	0	1	0	7	12	16	18	21	22	23	23	23	21	16	11	11	6	6	5	4	23	0	10.5			
315	3	3	3	4	5	5	4	8	13	17	20	23	25	25	26	26	25	18	15	14	11	10	11	9	26	3	13.5			
316	8	10	9	8	9	8	6	8	14	20	22	24	25	26	26	27	24	15	14	14	12	13	13	9	27	6	15.2			
317	8	7	8	7	7	5	5	8	16	19	21	23	25	25	26	26	25	24	18	13	14	9	7	6	7	26	5	13.9		
318	7	7	4	5	4	7	4	9	13	17	20	22	24	25	26	26	25	17	11	8	5	6	6	5	26	4	12.6			
319	3	3	2	1	2	3	5	7	13	17	20	22	24	26	26	25	23	14	10	8	6	4	4	5	26	1	11.4			
320	4	3	3	4	5	7	7	9	17	17	19	21	23	21	21	19	17	15	14	12	11	11	10	10	23	3	12.5			
321	10	7	5	4	4	2	4	9	15	18	22	23	25	25	25	23	21	16	12	10	9	8	6	6	25	2	12.9			
322	5	5	4	6	5	5	4	8	14	24	25	25	24	19	17	13	10	10	10	10	8	8	8	9	25	4	11.5			
323	8	10	7	10	13	16	20	23	24	25	26	25	24	20	20	17	16	15	12	10	6	4	3	3	26	3	14.9			
324	2	2	2	3	10	15	17	19	20	21	21	21	20	16	12	9	8	6	4	5	5	5	6	5	21	2	10.6			
325	5	5	6	7	12	14	16	17	18	17	18	19	18	16	15	12	10	9	8	7	7	8	10	10	19	5	11.8			
326	9	9	9	10	11	13	16	15	13	15	15	14	13	12	12	12	11	10	11	11	10	9	9	9	16	9	11.6			
327	7	8	7	8	9	11	13	14	15	16	16	14	13	11	9	10	9	9	8	7	7	6	4	2	16	2	9.7			
328	2	1	1	5	10	13	15	16	17	17	18	18	17	13	11	11	10	9	6	4	2	2	2	1	18	1	9.2			
329	1	1	0	1	5	8	10	13	16	18	19	20	20	18	15	13	13	13	11	9	8	8	6	6	20	0	10.5			
330	7	7	5	4	8	11	14	15	15	16	17	17	17	16	13	11	9	10	10	10	11	10	12	12	17	4	11.5			
331	11	11	11	10	11	12	14	16	17	18	17	16	16	14	11	10	7	6	5	4	5	4	4	5	18	4	10.6			
332	3	4	5	7	8	10	11	13	13	15	16	17	15	13	12	12	11	10	9	9	9	10	10	7	17	3	10.4			
333	4	5	4	4	6	8	9	10	10	11	11	11	11	9	6	5	4	1	0	0	-1	-1	1	0	11	-1	5.3			
334	0	-2	-2	-1	0	5	9	11	13	14	15	15	16	15	10	8	8	5	2	1	0	2	0	-1	16	-2	6.0			
335	-2	-2	-3	-3	0	6	10	13	14	14	14	14	13	11	9	8	6	6	4	3	1	0	-2	-2	14	-3	5.5			

Table 3.--Two-hour relative humidities for Phoenix, 1967

DAY	T W O - H O U R				R E L A T I V E				H U M I D I T Y				MAX	MIN	AVER
109	50	52	56	54	49	47	42	36	32	34	43	46	56	32	45.08
110	48	57	69	60	48	44	38	36	37	42	43	46	69	36	47.33
111	54	69	73	68	54	44	37	32	34	40	44	56	73	32	50.42
112	62	71	71	64	53	48	43	40	40	42	42	52	71	40	52.33
113	60	66	70	62	44	42	33	32	32	36	40	36	70	32	46.08
114	49	66	78	60	44	40	34	35	34	40	47	54	78	34	48.42
115	59	70	86	80	58	48	42	36	36	47	60	64	86	36	57.17
116	72	72	74	59	44	34	30	23	20	32	38	56	74	20	46.17
117	70	77	72	56	36	30	24	23	24	34	49	49	77	23	45.33
118	66	70	71	51	42	32	29	29	31	36	37	46	71	29	45.00
119	46	54	56	53	45	40	38	34	33	34	40	42	56	33	42.92
120	54	66	62	56	42	32	28	28	28	31	34	38	66	28	41.58
121	41	52	54	43	34	27	25	24	22	24	32	47	54	22	35.42
122	58	60	60	53	47	33	26	24	25	29	36	52	60	24	41.92
123	54	56	61	61	46	36	27	26	25	29	36	45	61	25	41.83
124	52	62	67	66	48	40	30	28	28	31	36	44	67	28	44.33
125	47	50	68	71	50	46	35	33	33	35	40	44	71	33	46.00
126	48	64	68	72	54	41	34	32	26	22	36	52	72	22	45.75
127	57	60	75	70	48	40	32	24	22	25	30	51	75	22	44.50
128	54	61	60	58	53	32	28	26	25	31	42	58	61	25	44.00

Table 3.--Two-hour relative humidities for Phoenix, 1967--Continued

DAY	T W O - H O U R R E L A T I V E H U M I D I T Y												MAX	MIN	AVER
129	59	66	68	60	43	37	34	32	30	34	41	44	68	30	45.67
130	38	56	58	69	57	51	48	42	41	43	48	42	69	38	49.42
131	48	68	77	74	51	45	33	29	30	34	40	47	77	29	48.00
132	50	63	72	70	49	34	32	28	30	30	36	34	72	28	44.00
133	37	40	47	76	42	39	32	28	26	26	30	30	76	26	37.75
134	36	37	38	42	40	31	24	22	22	23	29	34	42	22	31.50
135	34	31	39	41	33	25	22	20	21	27	34	42	42	20	30.75
136	46	46	45	43	31	24	23	18	18	25	34	48	48	18	33.42
137	53	53	50	54	44	28	25	25	30	31	36	36	54	25	38.75
138	38	38	44	46	41	30	28	28	26	28	33	46	46	26	35.50
139	50	52	60	57	48	30	26	27	29	30	32	39	60	26	40.00
140	48	54	54	61	44	32	26	24	26	25	34	47	61	24	39.58
141	48	43	40	45	52	42	30	28	24	31	32	37	52	24	37.67
142	52	59	64	56	41	33	30	28	30	34	38	45	64	28	42.50
143	51	62	64	63	51	47	46	47	49	50	53	59	64	46	53.50
144	99	96	82	89	72	58	50	54	42	69	78	83	99	42	72.67
145	81	94	96	88	81	60	53	60	70	83	76	76	96	53	76.50
146	96	93	99	96	76	60	44	37	23	46	52	52	99	23	64.50
147	64	88	90	89	90	62	60	36	36	42	50	47	90	36	62.83
148	64	74	82	84	54	43	34	31	32	37	47	52	84	31	52.83
149	58	92	94	90	68	57	49	47	45	49	88	97	97	45	69.50
150	99	99	99	88	68	54	48	41	41	43	48	56	99	41	65.33
151	66	75	72	62	45	32	30	28	27	34	44	69	75	27	48.67
152	52	58	68	60	48	38	32	32	33	36	44	54	68	32	46.25
153	60	78	77	66	50	40	36	30	28	34	40	42	78	28	48.42
154	50	66	74	64	55	52	84	50	40	41	68	66	84	40	59.17
155	78	92	98	82	58	47	39	36	31	42	50	64	98	31	59.75
156	63	71	94	86	66	39	36	30	26	26	30	35	94	26	50.17
157	49	56	66	59	44	33	30	28	30	30	34	38	66	28	41.42
158	41	48	50	59	44	34	26	26	29	30	33	49	59	26	39.08
159	57	71	71	63	50	34	28	28	27	28	32	34	71	27	43.58
160	42	64	70	64	48	39	31	30	27	28	34	40	70	27	43.08
161	54	60	68	66	50	40	36	35	35	36	40	51	68	35	47.58
162	64	70	72	64	50	40	34	34	34	38	40	49	72	34	49.08
163	58	70	66	64	48	36	33	36	30	38	42	52	70	30	47.75
164	58	56	66	62	60	52	46	50	56	55	57	59	66	46	56.42
165	64	78	90	86	72	52	46	42	39	40	46	64	90	39	59.92
166	64	72	82	70	48	44	36	31	30	30	44	59	82	30	50.83
167	44	50	47	57	48	38	32	23	20	14	15	20	57	14	34.00
168	29	44	47	43	33	25	20	16	15	16	18	23	47	15	27.42
169	34	54	48	66	84	88	89	86	78	75	82	84	89	34	72.33
170	86	86	83	85	77	60	50	55	47	52	60	78	86	47	68.25
171	86	99	99	97	68	47	39	39	37	36	68	86	99	36	66.75
172	92	99	99	70	44	37	30	30	28	30	50	64	99	28	56.08
173	73	73	64	63	49	32	26	22	26	30	44	64	73	22	47.17
174	72	80	79	70	34	31	35	32	30	34	36	47	80	30	48.33
175	76	80	77	74	52	40	30	28	40	32	41	46	80	28	51.33
176	54	78	70	69	58	43	40	40	42	45	54	84	84	40	56.42
177	94	97	97	79	70	52	52	49	42	40	48	62	97	40	65.17
178	72	82	85	84	56	41	34	32	32	34	38	38	85	32	52.33
179	48	60	72	76	58	41	35	31	29	31	41	71	76	29	49.42
180	68	82	84	80	52	34	36	28	24	30	38	60	84	24	51.33
181	64	82	74	66	61	40	42	33	32	32	50	51	82	32	52.25
182	84	84	66	76	61	45	39	31	30	31	33	51	84	30	52.58
183	58	85	80	71	71	54	41	36	35	35	37	41	85	35	53.67
184	58	74	70	76	58	49	44	45	44	46	48	53	76	44	55.42
185	61	69	80	82	56	52	45	44	44	44	50	58	82	44	57.08
186	60	69	68	72	62	54	52	48	48	48	54	58	72	48	57.75
187	58	76	86	80	68	72	59	60	58	58	64	64	86	58	66.92
188	62	65	88	99	91	68	64	50	44	49	58	74	99	44	67.67
189	78	88	95	90	64	52	46	42	42	41	41	60	95	41	61.58
190	69	72	81	80	75	54	50	56	66	62	82	89	89	50	69.67
191	99	98	99	89	71	58	50	46	48	45	51	54	99	45	67.33
192	99	99	99	83	81	59	45	36	33	50	68	89	99	33	70.08
193	81	64	76	74	74	53	44	38	42	42	58	74	81	38	60.00



Table 3.--Two-hour relative humidities for Phoenix, 1967--Continued

DAY	T W O - H O U R				R E L A T I V E				H U M I D I T Y				MAX	MIN	AVER
194	81	99	82	64	54	50	48	44	42	42	48	57	99	42	59.25
195	52	60	60	68	63	56	42	38	46	45	52	68	68	38	54.17
196	67	77	80	82	86	82	60	53	49	49	49	62	86	49	66.33
197	75	76	75	85	72	57	54	47	49	52	66	99	99	47	67.25
198	95	99	99	96	82	72	62	56	53	64	70	66	99	53	76.17
199	79	99	99	90	66	52	40	40	38	53	58	84	99	38	66.50
200	76	78	82	66	52	47	42	36	37	34	71	52	82	34	56.08
201	46	78	96	80	64	42	42	32	34	56	56	42	96	32	55.67
202	43	50	59	70	64	54	52	46	52	60	99	99	99	43	62.33
203	99	99	99	90	86	73	56	80	63	71	75	93	99	56	82.00
204	99	99	99	78	56	45	40	38	39	39	65	87	99	38	65.33
205	90	80	99	86	59	71	64	57	66	72	87	69	99	57	75.00
206	90	80	99	86	70	54	47	45	45	44	49	74	99	44	65.25
207	84	85	97	94	60	61	68	67	58	56	76	74	97	56	73.33
208	82	94	95	90	80	63	67	58	59	46	56	70	95	46	71.67
209	71	75	89	82	72	58	54	49	47	45	61	83	89	45	65.50
210	87	90	97	92	72	55	51	49	45	46	55	54	97	45	66.08
211	99	99	99	99	82	64	52	50	44	50	62	54	99	44	71.17
212	76	90	98	97	89	54	53	49	56	45	59	69	98	45	69.58
213	95	84	97	88	77	55	40	38	39	44	60	60	97	38	64.75
214	70	85	96	79	50	44	44	40	42	50	55	62	96	40	59.75
215	47	63	81	69	80	96	99	77	71	79	98	99	99	47	79.92
216	99	99	84	89	60	53	54	53	46	61	70	71	99	46	69.92
217	66	71	82	96	88	86	64	56	59	64	68	81	96	56	73.42
218	99	99	99	86	69	60	50	45	46	47	62	78	99	45	70.00
219	92	99	99	86	64	55	64	51	65	77	60	69	99	51	73.42
220	89	83	94	88	76	55	58	48	73	83	82	81	94	48	75.83
221	89	83	94	90	76	57	65	40	37	52	46	52	94	37	65.08
222	63	72	67	69	60	57	55	50	51	50	57	66	72	50	59.75
223	99	99	99	95	66	54	51	49	48	56	65	84	99	48	72.08
224	83	84	82	78	58	55	45	50	46	53	70	72	84	45	64.67
225	80	67	92	80	63	54	49	44	43	42	39	61	92	39	59.50
226	60	94	74	77	60	54	44	37	48	33	56	59	94	33	58.00
227	70	85	98	90	69	49	44	41	36	38	36	49	98	36	58.75
228	50	84	91	88	66	55	48	46	46	46	43	57	91	43	60.00
229	61	80	98	90	71	58	51	51	49	47	72	87	98	47	67.92
230	92	98	98	90	71	60	52	45	42	70	61	68	98	42	70.58
231	72	90	98	87	69	58	44	42	39	35	33	45	98	33	59.33
232	44	62	73	86	72	57	59	36	38	33	53	50	86	33	55.25
233	68	77	72	76	62	52	42	34	33	38	41	57	77	33	54.33
234	55	70	83	78	60	48	45	39	35	35	49	54	83	35	54.25
235	54	84	92	87	72	58	48	44	40	50	51	89	92	40	64.08
236	82	90	92	96	75	52	46	46	42	44	60	54	96	42	64.92
237	86	92	95	90	72	56	43	38	34	42	45	68	95	34	63.42
238	65	76	84	70	64	51	46	32	34	34	38	40	84	32	52.83
239	57	53	65	75	61	49	46	46	52	51	65	48	75	46	55.67
240	65	65	74	77	69	54	48	45	48	44	49	46	77	44	57.00
241	50	65	72	65	61	50	44	41	42	42	60	68	72	41	55.00
242	53	63	61	67	65	91	69	58	47	44	54	62	91	44	61.17
243	52	53	57	71	59	57	52	50	55	59	49	55	71	49	55.75
244	56	56	70	72	77	70	73	71	68	70	91	93	93	56	72.25
245	89	99	99	99	88	71	63	72	90	99	99	99	99	63	88.92
246	99	99	99	99	99	79	60	52	55	80	95	99	99	52	84.58
247	99	99	99	99	75	59	49	49	50	52	75	82	99	49	73.92
248	89	99	99	99	91	61	43	42	44	55	65	66	99	42	71.08
249	90	99	99	81	57	50	45	52	54	53	77	78	99	45	69.58
250	87	97	98	84	60	53	51	43	42	49	67	83	98	42	67.83
251	88	89	99	99	69	57	46	44	38	44	55	60	99	38	65.67
252	74	89	90	85	60	45	38	36	37	40	51	56	90	36	58.42
253	60	76	90	90	59	57	42	34	34	43	51	61	90	34	58.08
254	63	89	88	85	60	49	42	38	39	42	53	69	89	38	59.75
255	73	82	98	86	63	51	45	40	36	46	47	64	98	36	60.92
256	75	79	93	81	70	50	43	38	37	44	49	48	93	37	58.92
257	64	80	87	65	54	45	34	29	26	28	48	64	87	26	52.00
258	70	61	71	71	51	39	32	27	24	30	50	63	71	24	49.08

Table 3.--Two-hour relative humidities for Phoenix, 1967--Continued

DAY	T W O - H C U R				R E L A T I V E				H U M I D I T Y				MAX	MIN	AVER
259	66	67	69	63	52	40	34	25	26	27	39	54	69	25	46.83
260	58	76	65	70	54	45	38	34	31	36	43	45	76	31	49.58
261	55	75	80	75	62	45	43	38	37	40	48	56	80	37	54.50
262	70	75	80	84	64	45	44	39	37	42	53	59	84	37	57.67
263	67	62	88	76	60	45	41	38	37	43	55	64	88	37	56.33
264	64	66	83	92	67	54	46	40	39	45	54	58	92	39	59.00
265	68	73	78	90	55	43	37	36	41	46	51	68	90	36	57.17
266	70	80	99	90	59	37	31	31	35	37	41	43	99	31	54.42
267	46	58	70	74	52	46	34	44	55	58	61	62	74	34	55.00
268	75	91	95	94	66	54	37	30	32	40	58	74	95	30	62.17
269	88	87	92	95	66	54	40	38	39	44	54	59	95	38	63.00
270	70	79	73	82	57	50	44	41	41	46	53	65	82	41	58.42
271	71	86	67	73	55	43	39	37	38	47	59	63	86	37	56.50
272	64	69	70	69	56	42	39	35	35	46	54	68	70	35	53.92
273	60	70	68	70	52	40	38	35	38	45	50	60	70	35	52.17
274	64	77	77	78	55	49	44	40	42	54	54	59	78	40	57.75
275	68	82	90	99	52	73	47	44	46	54	68	78	99	44	70.08
276	70	89	88	88	87	70	62	46	57	82	86	88	89	46	76.08
277	88	88	87	97	66	56	50	47	51	64	93	99	99	47	73.83
278	98	99	99	93	72	47	43	40	40	51	64	72	99	40	68.17
279	85	99	99	97	40	29	24	21	24	31	50	64	99	21	55.25
280	60	87	70	50	26	21	19	17	26	44	64	67	87	17	45.92
281	54	84	87	60	39	26	21	21	30	48	77	72	87	21	51.58
282	84	97	69	65	58	37	29	26	26	37	54	56	97	26	53.17
283	81	82	84	72	47	35	27	26	28	44	53	53	84	26	52.67
284	77	79	80	84	50	40	35	31	34	43	60	69	84	31	56.83
285	72	63	90	80	52	40	36	31	31	44	54	66	90	31	54.92
286	86	92	92	87	59	46	35	29	30	40	58	75	92	29	60.75
287	84	82	82	79	54	44	38	34	32	43	54	76	84	32	58.50
288	80	86	90	68	40	23	19	18	16	26	30	36	90	16	44.33
289	47	48	49	41	38	36	34	30	30	49	56	62	62	30	43.33
290	71	75	81	54	45	28	23	23	24	44	54	50	81	23	47.67
291	45	50	50	56	37	33	26	24	26	43	50	52	56	24	41.00
292	54	68	56	54	46	33	28	25	25	38	53	59	68	25	44.92
293	61	68	72	67	48	39	28	25	25	40	52	61	72	25	48.83
294	59	80	78	66	46	48	32	29	30	43	49	60	80	29	51.67
295	61	65	64	62	53	48	44	40	41	52	65	83	83	40	56.50
296	82	91	83	93	78	55	45	40	38	51	67	84	93	38	67.25
297	83	91	96	90	66	50	41	35	35	54	62	75	96	35	64.83
298	84	93	94	88	65	50	42	35	34	46	78	76	98	34	65.83
299	72	70	83	86	58	50	44	40	39	60	75	71	86	39	62.33
300	89	92	92	76	64	49	41	36	36	50	71	75	92	36	64.25
301	88	93	84	77	64	47	40	34	34	45	48	66	93	34	60.00
302	84	79	78	66	46	28	24	24	24	25	29	29	84	24	44.67
303	28	34	50	49	38	31	29	27	32	40	52	60	60	27	39.17
304	62	67	80	69	44	35	34	33	40	52	73	75	80	33	55.33
305	72	73	76	68	48	43	38	35	44	57	72	77	77	35	58.58
306	80	80	84	78	60	50	42	40	45	61	77	76	84	40	64.42
307	78	85	78	53	36	33	31	32	40	52	69	73	85	31	55.00
308	72	74	66	62	51	44	38	35	40	57	62	64	74	35	55.42
309	70	75	68	75	58	43	42	36	44	50	62	64	75	36	57.25
310	70	70	76	75	54	46	45	44	50	66	63	72	76	44	60.92
311	86	85	85	80	57	50	46	44	52	64	74	79	86	44	66.83
312	77	88	90	79	56	49	42	40	48	60	74	68	90	40	64.25
313	70	64	70	69	54	46	43	38	46	60	74	84	84	38	59.83
314	80	81	86	79	55	46	39	36	46	59	74	80	86	36	63.42
315	84	88	90	80	60	44	36	32	41	54	64	76	90	32	62.42
316	58	79	70	60	48	34	30	30	37	43	45	50	79	30	48.67
317	53	54	60	60	50	36	33	31	40	55	56	63	63	31	49.25
318	54	63	59	56	50	39	35	31	40	52	70	72	72	31	51.75
319	78	72	74	72	59	41	34	31	42	52	64	63	78	31	56.83
320	64	64	64	59	54	43	36	34	45	58	66	73	73	34	55.00
321	71	75	75	74	54	42	40	37	42	59	65	64	75	37	58.17
322	69	72	72	70	55	46	45	44	52	60	73	85	85	44	61.92

Table 3.--Two-hour relative humidities for Phoenix, 1967--Continued

DAY	T W O - H C U R				R E L A T I V E				H U M I D I T Y				MAX	MIN	AVER
323	86	85	98	86	67	66	53	45	49	57	70	88	98	45	70.83
324	99	99	99	99	80	60	53	54	59	73	89	90	99	53	79.50
325	95	95	99	92	82	66	59	60	67	59	99	99	99	59	84.33
326	99	99	99	99	99	79	63	63	84	99	99	99	99	63	90.08
327	99	99	99	99	99	94	64	69	98	99	99	99	99	64	93.08
328	99	99	99	99	83	64	55	50	61	91	99	99	99	50	83.17
329	99	99	99	97	66	55	41	42	56	83	98	99	99	41	77.83
330	99	99	99	99	68	54	46	51	58	74	99	99	99	46	78.75
331	99	99	99	99	89	80	75	77	99	99	99	99	99	75	92.75
332	99	99	99	99	99	96	70	84	98	99	99	99	99	70	95.00
333	87	89	92	94	66	55	49	50	91	98	99	99	99	49	80.75

Table 4.--Two-hour relative humidities for Safford, 1967

DAY	T W O - H C U R				R E L A T I V E				H U M I D I T Y				MAX	MIN	AVER
138	46	50	56	57	43	34	23	24	26	27	39	49	57	23	39.50
139	52	58	59	62	44	29	23	20	20	22	26	35	62	20	37.50
140	40	52	51	46	32	24	20	17	16	19	24	28	52	16	30.75
141	41	41	44	46	42	37	32	27	24	22	34	38	46	22	35.67
142	42	48	51	50	36	30	27	24	24	25	34	41	51	24	36.00
143	44	44	40	45	31	25	20	16	16	31	35	45	45	16	32.67
144	52	52	50	65	52	44	36	32	70	99	99	99	99	32	62.50
145	99	99	99	99	68	70	68	36	39	50	74	96	99	36	74.75
146	96	96	96	96	45	30	23	21	18	28	44	49	96	18	53.50
147	72	74	84	54	30	21	19	14	16	18	21	24	84	14	37.25
148	32	46	64	56	26	28	15	13	12	14	22	26	64	12	29.50
149	29	36	54	46	30	22	18	18	20	24	30	44	54	18	30.92
150	65	67	66	62	50	55	42	36	34	40	46	62	67	34	52.08
151	72	78	81	51	32	22	20	19	17	19	26	36	81	17	39.42
152	46	51	56	50	34	28	24	20	18	22	28	30	56	18	33.92
153	38	54	58	50	30	28	22	21	20	24	30	30	58	20	33.75
155	62	64	68	58	46	40	32	33	32	35	39	47	68	32	46.33
154	30	50	60	56	50	32	28	26	30	34	42	50	60	26	40.67
156	46	52	52	48	46	32	28	26	24	28	32	29	52	24	36.92
157	30	40	52	40	25	23	17	12	10	10	14	18	52	10	24.25
158	20	26	36	35	25	22	20	14	14	15	16	22	36	14	22.08
159	22	34	38	34	26	17	14	12	11	13	19	24	38	11	22.00
160	26	30	36	31	23	16	14	12	10	11	12	16	36	10	19.75
161	23	30	37	34	24	19	16	14	15	16	21	26	37	14	22.92
162	31	38	43	40	32	26	23	20	18	19	22	26	43	18	28.17
163	34	34	38	36	30	23	20	19	19	20	24	29	38	19	27.17
164	34	42	42	44	30	27	25	25	26	28	34	42	44	25	33.25
165	49	54	69	70	52	44	37	34	33	37	42	46	70	33	47.25
166	46	58	66	54	44	36	32	28	26	24	26	31	66	24	39.25
167	41	48	52	48	28	22	22	19	18	18	24	26	52	18	30.50
168	24	40	41	46	51	41	34	26	21	30	33	46	51	21	36.08
169	55	56	65	66	56	46	36	32	42	99	99	90	99	32	61.83
170	99	83	99	90	58	43	36	34	34	46	57	61	99	34	61.67
171	68	73	84	74	58	48	36	30	30	26	29	33	84	26	49.08
172	40	50	74	70	38	29	25	23	20	20	24	26	74	20	36.58
173	37	58	57	46	30	20	16	16	16	18	22	26	58	16	30.17
174	28	32	45	40	30	25	22	20	22	25	29	32	45	20	29.17
175	32	40	50	51	46	46	78	68	53	56	70	82	82	32	56.00
176	86	90	94	70	48	38	32	24	22	32	48	49	94	22	52.75
177	52	59	66	66	50	35	33	30	30	33	36	40	66	30	44.17
178	46	52	56	58	46	37	29	29	29	31	34	38	58	29	40.42
179	41	46	52	50	44	34	32	28	28	30	36	37	52	28	38.17
180	39	40	59	50	36	28	22	20	20	22	28	32	59	20	33.00
181	46	60	64	60	50	42	34	25	25	36	40	36	64	25	43.17
182	45	52	58	52	40	32	28	20	22	22	29	30	58	20	35.83
183	36	46	52	42	31	26	22	18	17	22	26	30	52	17	30.67
184	37	47	50	47	40	34	32	30	28	36	40	46	50	28	38.92



Table 4.--Two-hour relative humidities for Safford, 1967--Continued

DAY	T W O - H O U R R E L A T I V E H U M I D I T Y												MAX	MIN	AVER
185	54	60	73	64	50	44	38	34	30	36	46	52	73	33	48.42
186	56	54	64	72	63	54	44	40	36	49	59	68	72	36	54.92
187	62	66	68	70	52	48	40	37	38	54	83	99	99	37	59.75
188	87	99	96	99	84	60	56	48	80	83	90	99	99	48	81.75
189	99	99	99	86	50	36	30	26	26	28	32	84	99	26	57.92
190	76	72	74	70	58	42	36	28	32	50	90	99	99	28	60.58
191	97	99	99	99	70	50	36	26	22	26	32	36	99	22	57.67
192	85	98	99	99	78	56	37	29	26	30	43	80	99	26	63.33
193	73	94	99	99	58	35	28	24	23	27	36	40	99	23	53.00
194	44	54	77	64	45	37	30	27	44	48	92	84	92	27	53.83
195	84	80	84	78	62	52	45	36	34	39	50	60	84	34	58.67
196	70	86	92	66	50	38	30	26	36	41	50	52	92	26	53.08
197	65	70	81	72	62	48	40	48	82	99	99	99	99	40	72.08
198	99	99	99	99	82	62	56	54	50	50	72	74	99	50	74.67
199	80	89	99	76	56	47	36	27	60	60	64	74	99	27	64.00
200	86	99	99	99	60	38	28	22	26	30	50	70	99	22	58.92
201	81	74	82	64	46	38	34	28	90	89	72	94	94	28	66.00
202	94	84	96	72	60	50	44	36	34	41	66	62	96	34	61.58
203	70	91	99	90	70	52	46	46	50	48	52	66	99	46	65.00
204	65	78	96	84	60	50	38	34	37	38	38	40	96	34	54.83
205	44	54	91	60	50	39	34	30	52	90	67	72	91	30	56.92
206	99	80	99	80	54	42	40	31	36	36	40	45	99	31	56.83
207	58	80	78	84	72	48	43	45	48	50	58	65	84	43	60.75
208	66	99	99	93	80	58	52	50	54	62	62	72	99	50	70.58
209	80	90	89	88	74	52	46	40	40	44	50	52	90	40	62.08
210	60	85	96	93	60	55	45	39	50	75	75	99	99	39	69.33
211	98	88	99	94	64	48	46	46	58	58	63	99	99	46	73.42
212	99	99	99	80	60	48	49	46	56	57	63	76	99	46	69.33
213	90	94	99	90	70	48	40	37	38	38	38	52	99	37	61.17
214	64	62	82	90	60	43	31	27	34	40	62	77	90	27	56.00
215	81	83	88	92	64	43	36	44	82	99	99	99	99	36	75.83
216	99	99	99	90	63	80	54	46	58	74	99	99	99	46	80.00
217	99	99	99	84	62	50	40	30	40	44	99	99	99	30	70.42
218	99	99	99	94	80	60	48	48	50	55	67	80	99	48	73.25
219	99	99	99	84	60	47	42	37	43	46	80	84	99	37	68.33
220	90	99	99	74	55	44	37	93	65	80	84	99	99	37	76.58
221	86	99	99	90	70	55	44	42	91	97	99	99	99	42	80.92
222	95	99	99	99	68	62	56	46	49	48	80	99	99	46	75.00
223	99	99	99	98	72	64	54	50	60	98	99	99	99	50	82.58
224	97	86	84	69	64	60	58	57	64	66	72	99	99	57	73.00
225	99	99	82	63	58	50	45	43	60	51	70	99	99	43	68.25
226	98	99	83	69	54	47	69	56	49	68	78	88	99	47	71.50
227	94	99	77	64	55	40	35	34	34	40	55	80	99	34	58.92
228	98	99	87	85	56	50	44	38	25	36	74	96	99	25	65.67
229	99	99	99	76	54	42	33	32	30	60	68	90	99	30	65.17
230	92	99	99	81	49	38	30	34	46	52	48	55	99	30	60.25
231	99	99	99	77	50	36	28	26	26	36	72	90	99	26	61.50
232	99	99	99	87	58	43	33	26	30	72	31	52	99	26	60.75
233	56	80	84	74	50	36	28	24	30	42	80	70	84	24	54.50
234	84	99	99	70	50	34	30	26	27	30	38	71	99	26	54.83
235	89	65	86	90	52	38	30	25	54	62	56	76	90	25	60.25
236	94	99	99	80	50	37	32	25	26	42	75	96	99	25	62.92
237	96	99	99	78	48	30	25	24	28	39	70	90	99	24	60.50
238	91	99	84	60	46	36	28	26	26	30	50	44	99	26	51.67
239	46	54	56	58	53	43	38	37	38	40	50	54	58	37	47.25
240	64	66	70	67	54	45	37	32	44	48	55	90	90	32	56.00
241	82	82	94	74	54	40	34	33	30	34	54	80	94	30	57.58
242	80	71	86	77	54	46	38	33	33	34	60	56	86	33	55.67
243	64	73	89	78	71	60	51	50	50	51	58	60	89	50	62.92
244	64	84	99	99	90	80	78	90	90	96	99	99	99	64	89.00
245	99	99	99	92	75	59	46	53	56	63	76	86	99	46	75.25
246	99	92	99	90	65	50	43	38	44	54	63	74	99	38	67.58
247	90	99	99	78	64	47	40	33	34	79	80	70	99	33	67.75
248	72	69	80	80	66	60	52	54	54	75	76	98	98	52	69.67
249	99	81	99	86	55	42	35	34	41	55	53	70	99	34	62.50

Table 4.--Two-hour relative humidities for Safford, 1967--Continued

DAY	T W O - H O U R				R E L A T I V E				H U M I D I T Y				MAX	MIN	AVER
250	90	99	99	77	55	45	35	28	42	56	70	98	99	28	66.17
251	94	99	99	75	48	42	36	35	57	57	83	99	99	35	68.67
252	99	99	99	73	57	39	32	29	42	42	50	52	99	29	59.42
253	60	74	72	65	50	40	34	32	50	85	99	94	99	32	62.92
254	99	99	99	80	86	42	35	29	40	69	99	95	99	29	72.67
255	78	85	99	70	50	35	27	25	28	40	65	60	99	25	55.17
256	54	78	99	99	50	36	30	26	25	29	38	80	99	25	53.67
257	80	94	91	99	80	49	38	34	30	43	50	84	99	30	64.33
258	97	99	99	80	40	32	24	24	24	60	46	60	99	24	57.08
259	80	79	99	88	58	40	42	48	97	99	99	99	99	40	77.33
260	99	99	99	80	57	44	33	25	32	64	86	88	99	25	67.17
261	99	99	99	70	44	36	26	21	24	50	73	82	99	21	60.25
262	91	90	80	65	44	34	32	30	33	38	64	81	91	30	56.83
263	84	92	99	84	53	40	34	30	30	60	75	73	99	30	62.83
264	82	80	73	70	52	44	38	33	32	40	64	70	82	32	56.50
265	60	60	80	68	46	42	40	38	42	58	61	72	80	38	55.58
266	77	95	90	84	64	50	36	34	34	51	60	63	95	34	61.50
267	64	66	77	99	84	72	80	60	99	99	98	99	99	60	83.08
268	99	99	99	99	83	65	98	98	99	99	99	99	99	65	94.67
269	99	99	99	84	65	51	44	30	40	70	79	80	99	30	70.00
270	94	95	89	70	54	46	44	42	45	51	84	99	99	42	67.75
271	99	89	96	62	46	42	36	33	36	66	90	97	99	33	66.00
272	99	99	94	70	44	32	26	24	29	68	94	86	99	24	63.75
273	82	78	85	81	43	28	25	29	58	60	95	92	95	25	63.00
274	99	99	87	42	30	27	25	36	55	84	92	95	99	25	64.25
275	96	90	99	60	45	36	41	54	62	74	96	99	99	36	71.00
276	86	99	90	98	62	64	99	99	99	99	99	99	99	62	91.08
277	99	99	99	99	90	56	50	44	47	78	99	99	99	44	79.92
278	99	99	92	88	52	40	34	24	25	52	67	76	99	24	62.33
279	80	99	99	82	52	36	25	24	26	38	43	44	99	24	54.00
280	56	64	88	79	28	18	15	14	25	70	91	99	99	14	53.92
281	99	97	99	70	27	19	14	14	24	70	78	93	99	14	58.67
282	88	95	99	60	29	21	17	18	30	66	76	94	99	17	57.75
283	99	99	99	55	30	22	20	20	34	51	67	84	99	20	56.67
284	99	99	99	72	46	36	30	24	38	70	89	98	99	24	66.67
285	96	84	99	61	40	30	22	21	38	65	80	90	99	21	60.50
286	99	99	99	61	35	27	20	18	26	50	57	66	99	18	54.75
287	48	56	82	32	60	47	42	37	46	76	94	99	99	32	59.92
288	99	99	51	34	23	20	16	14	34	48	54	42	99	14	44.50
289	50	58	60	62	61	56	46	38	33	32	46	66	66	32	50.67
290	73	70	67	70	75	54	35	30	25	25	40	58	75	25	51.83
291	64	64	66	72	66	42	31	26	22	22	36	44	72	22	46.25
292	50	57	50	54	64	44	31	25	23	23	44	61	64	23	43.83
293	71	74	80	82	84	46	34	26	22	22	38	60	84	22	53.25
294	66	66	66	66	50	35	30	26	27	50	77	76	77	26	52.92
295	76	84	84	76	52	36	32	46	52	73	88	98	98	32	66.42
296	95	99	99	55	42	40	33	32	42	44	55	71	99	32	58.92
297	71	99	99	57	45	36	29	28	65	52	70	75	99	28	60.50
298	86	90	94	87	50	38	32	30	31	46	61	76	94	30	60.08
299	90	92	99	99	40	36	30	29	32	41	60	77	99	29	60.42
300	79	86	91	83	55	39	32	30	31	51	87	96	96	30	63.33
301	94	99	99	99	61	40	35	31	30	36	49	46	99	30	59.92
302	50	48	46	50	49	37	29	25	26	31	34	40	50	25	38.75
303	60	59	77	74	60	49	41	36	37	45	63	79	79	36	56.67
304	80	82	85	86	60	40	34	30	28	51	72	73	86	28	60.08
305	75	86	90	90	60	42	36	32	31	36	38	49	90	31	55.42
306	61	74	80	86	66	47	39	36	34	36	42	47	86	34	54.00
307	56	79	88	74	62	52	47	43	42	52	62	62	88	42	59.92
308	71	78	80	87	55	45	40	36	41	82	79	82	87	36	64.67
309	84	87	88	81	58	42	38	38	49	66	80	74	88	38	65.42
310	64	72	86	78	60	55	64	64	68	70	74	82	86	55	69.75
311	99	99	99	92	74	63	56	56	64	78	99	99	99	56	81.50
312	99	99	99	98	70	55	46	42	50	72	80	84	99	42	74.50
313	82	90	92	84	58	46	38	32	50	70	88	86	92	32	68.00

Table 4.--Two-hour relative humidities for Safford, 1967--Continued

DAY	T W O - H C U R				R E L A T I V E				H U M I D I T Y				MAX	MIN	AVER
314	90	90	90	80	49	40	34	31	34	54	70	74	90	31	61.33
315	80	80	76	72	46	30	27	26	37	52	51	56	80	26	52.75
316	54	54	60	54	34	28	26	26	38	43	48	54	60	26	43.25
317	62	64	70	54	40	32	28	29	46	52	46	48	70	28	47.58
318	60	61	72	58	41	32	28	26	42	62	59	62	72	26	50.25
319	64	68	64	55	40	32	26	23	36	58	62	60	68	23	49.00
320	63	63	59	56	39	31	29	31	40	48	54	59	63	29	47.67
321	76	87	85	72	48	35	32	33	45	61	69	73	87	32	59.67
322	73	76	75	76	37	34	40	52	68	71	79	78	79	34	63.25
323	79	81	66	50	38	33	38	43	46	54	72	85	85	33	57.08
324	89	94	63	50	42	40	45	73	81	90	84	86	94	40	69.75
325	88	82	66	56	56	54	58	70	82	99	99	99	99	54	75.75
326	99	99	99	67	99	98	99	99	99	99	99	99	99	67	96.25
327	99	99	99	78	54	60	81	99	99	99	99	99	99	54	88.75
328	99	99	87	61	50	46	48	67	72	99	99	99	99	46	77.17
329	99	99	83	62	50	47	46	63	66	80	96	99	99	46	74.17
330	99	99	84	63	61	56	57	78	88	91	99	99	99	56	81.17
331	99	99	99	74	59	70	75	99	99	99	99	99	99	59	89.17
332	99	99	99	76	62	54	62	74	88	99	98	90	99	54	83.33
333	99	99	70	59	49	47	54	84	99	99	99	99	99	47	79.75
334	99	99	85	56	42	38	32	64	85	99	99	99	99	32	74.75
335	99	99	82	54	50	51	50	58	69	99	99	99	99	50	75.75

Table 5.--Rainfall and irrigations in inches at Phoenix, 1967

DATE	RAIN	IRRIGATION TREATMENTS		
		WET	MED	DRY
102	.03			
103	.05			
146		1.60	1.60	1.60
169	1.28			
172		2.30	2.30	2.30
188		3.70		
191			3.80	5.00
192	.21			
200		4.00		
202	.21			
206			5.60	
209		3.60		5.00
210	.08			
212	.08			
220		3.70		
221			3.50	
227				6.10
230		4.00		
234			4.70	
244		3.30		
248		2.80		
250			6.00	7.90
262		4.00		
274	.18			
275	.30			

Table 6.--Rainfall and irrigations in inches at Safford, 1967

DATE	RAIN	IRRIGATION TREATMENTS		
		WET	MED	DRY
122		5.00	5.00	5.00
145	.23			
146	.03			
164		3.00	3.00	
170	.06			
176	.02			
187		3.00		3.00
188	.04			
191	.07			
192	.10			
193	.06			
195	.01			
198	.69			
199	.02			
200	.06			
202	.64			
205		3.00	3.00	
208	.06			
212	.04			
217	.11			
218	.12			
220		3.00		3.00
221	.37			
222	.17			
223	.56			
224	1.21			
232	.20			
236	.02			
238	.01			
244	1.17			
245	.08			
246	.02			
248	.01	5.00	5.00	5.00
254	.20			
260	.08			
268	.55			
269	.24			
274	.29			
277	.26			
284	.03			

Table 7.--Soil moisture expressed as percent of available moisture at different soil depths,  
Phoenix, 1967

DATE	WET						MED						DRY					
	SAMPLE DEPTH IN FEET						SAMPLE DEPTH IN FEET						SAMPLE DEPTH IN FEET					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
114	26	38	45	32	35	34	SAME AS WET TMT.						SAME AS WET TMT.					
121	34	42	46	32	30	33	*	*	*	*			*	*	*	*		
128	38	45	44	35	30	29	*	*	*	*			*	*	*	*		
135	49	45	47	37	34	32	*	*	*	*			*	*	*	*		
142	56	52	48	36	37	37	*	*	*	*			*	*	*	*		
151	15	29	38	36	33	35	*	*	*	*			*	*	*	*		
163	68	52	48	40	36	38	*	*	*	*			*	*	*	*		
171	53	66	52	43	38	40	*	*	*	*			*	*	*	*		
179	36	46	52	45	40	43							67	82	56	48	37	38
187	81	84	79	48	40	45							90	97	84	53	39	40
193	11	38	71	75	45	43												
198							25	37	65	68	53	41	16	24	42	44	28	22

Table 7.--Soil moisture expressed as percent of available moisture at different soil depths,  
Phoenix, 1967--Continued

DATE	WET						MED						DRY					
	SAMPLE DEPTH IN FEET						SAMPLE DEPTH IN FEET						SAMPLE DEPTH IN FEET					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
199	60	59	77	61	47	47												
205							60	62	75	81	69	53	62	57	68	58	48	32
207	40	38	50	58	51	49												
212							7	28	34	49	57	48						
215	31	35	41	48	51	44							22	34	46	63	54	44
219	57	47	52	48	48	48	48	50	57	57	60	54						
226													77	68	74	78	65	45
227	47	41	49	51	56	61	27	28	32	53	51	54						
233							61	46	55	65	62	60	17	35	38	28	48	44
234	6	25	32	43	52	51												
240							10	25	31	38	39	43						
244	0	6	5	17	20	36												
249							56	46	56	59	62	49						
250													0	2	8	12	27	20
255	33	29	27	27	29	36												
256							2	20	22	23	20	27						
261	67	45	41	35	35	36							17	21	28	33	34	32
268	21	25	33	34	34	29												
271							72	53	49	46	48	47	74	48	51	54	47	47
291	81	58	58	56	43	38	86	69	61	62	66	68	90	75	73	69	64	59
303	88	68	65	59	51	47	89	69	61	66	62	67	92	84	76	77	74	66

Table 8.--Certain physical characteristics of the soil at Phoenix

	SOIL DEPTH IN FEET					
	1ST	2ND	3RD	4TH	5TH	6TH
FIELD CAPACITY (PCT. MOISTURE)	20.6	18.0	17.8	18.9	19.2	19.4
PERMANENT WILTING POINT (PCT. MOISTURE)	8.6	8.4	8.3	8.5	8.6	8.8
BULK DENSITY	1.47	1.50	1.46	1.42	1.41	1.44
INCHES OF AVAILABLE WATER/FOOT	1.76	1.44	1.39	1.48	1.49	1.53

Table 9.--Height of S-3 and S-4 cotton plants (CM) at Safford, 1967

WEEK	S-3			S-4		
	WET	MED	CRY	WET	MED	DRY
21	3.78	3.91	3.69	3.57	3.17	3.38
22	4.56	4.50	4.36	4.15	3.92	3.99
23	5.74	5.70	5.46	5.28	5.01	5.04
24	7.37	7.48	7.22	7.00	6.64	6.55
25	10.65	11.01	9.58	10.46	10.01	8.89
26	15.87	16.67	13.37	15.69	15.14	12.75
27	22.39	24.29	18.65	21.81	21.93	17.84
28	30.19	30.06	25.12	29.14	26.54	24.60
29	40.81	39.64	34.64	38.02	33.27	33.44
30	55.05	48.76	43.79	47.47	41.87	44.20
31	66.22	59.45	49.05	57.61	51.27	49.67
32	72.83	66.99	50.66	61.30	58.46	51.42
33	80.53	73.71	58.72	69.46	66.68	57.70
34	89.63	81.21	62.60	71.50	70.30	58.90
35	90.02	79.44	64.32	72.12	70.32	60.83
36	90.40	80.83	65.48	72.55	70.59	60.26
37	90.53	80.19	66.05	72.53	70.84	



Table 10.--Height of S-3 and S-4 cotton plants (CM) at Phoenix, 1967

WEEK	S-3			S-4		
	WET	MED	DRY	WET	MED	DRY
17	3.16	3.29	3.57	3.43	3.35	3.53
18	4.47	4.45	4.47	4.58	4.33	4.75
19	5.84	6.07	6.10	6.54	6.12	6.37
20	7.29	7.41	7.55	8.07	7.59	7.80
21	9.42	9.39	9.60	10.18	9.71	9.92
22	13.63	13.57	13.60	14.59	13.82	14.05
23	17.22	17.02	17.19	18.68	17.57	17.71
24	21.61	20.70	21.05	22.51	21.24	21.16
25	27.02	26.22	27.03	28.00	26.55	25.67
26	37.07	35.43	33.52	35.75	34.86	30.48
27	46.10	41.93	38.55	42.16	41.81	35.05
28	58.56	48.90	45.34	48.69	49.66	38.80
29	71.78	59.73	55.59	59.01	58.28	46.89
30	85.41	66.13	63.18	67.81	64.71	52.34
31	99.03	76.78	72.47	75.37	72.82	57.49
32	107.26	79.71	82.13	78.14	78.75	60.32
33	120.59	89.18	87.27	84.09	83.28	60.90
34	124.98	92.13	91.91	85.94	83.52	65.53
35	127.29	93.51	95.05	86.68	83.98	66.87
36	129.27	95.82	98.38	87.28	84.24	65.16

Table 11.--Number of nodes on S-3 and S-4 cotton plants at Safford, 1967

WEEK	S-3			S-4		
	WET	MED	DRY	WET	MED	DRY
21	1.20	1.10	1.00	1.18	1.00	1.07
22	1.70	1.73	1.59	1.73	1.76	1.68
23	2.74	3.00	2.76	2.89	2.93	2.80
24	4.70	5.02	4.64	4.75	4.72	4.76
25	7.16	7.50	6.83	7.32	7.32	6.99
26	10.08	10.63	9.36	10.45	10.54	9.66
27	12.93	13.26	11.97	12.89	13.17	12.51
28	14.74	15.02	14.18	15.02	14.89	14.69
29	17.26	16.94	16.39	17.34	16.80	17.02
30	19.21	18.64	18.04	19.23	18.57	19.42
31	21.15	21.23	18.71	21.17	21.10	20.01
32	21.98	22.19	19.02	21.83	22.40	20.39
33	23.73	23.47	21.72	24.09	24.26	23.10
34	25.06	24.16	22.75	24.64	24.33	23.13
35	25.65	24.07	22.82	24.64	24.45	23.70
36	25.03	24.22	23.32	24.69	24.38	23.31
37	25.62	24.43	24.18	24.79	24.79	

Table 12.--Number of nodes on S-3 and S-4 cotton plants at Phoenix, 1967

WEEK	WET	S-3		WET	S-4	
		MED	DRY		MED	DRY
17	1.00	1.00	1.00	1.00	1.00	1.00
18	1.49	1.43	1.53	1.56	1.54	1.47
19	2.39	2.56	2.58	2.66	2.69	2.70
20	3.90	3.96	4.11	4.13	4.08	4.14
21	5.47	5.47	5.72	5.82	5.82	5.81
22	7.78	7.72	7.97	8.08	7.87	8.00
23	9.62	9.55	9.74	9.95	9.61	9.73
24	11.33	11.42	11.47	11.53	11.37	11.32



Table 12.--Number of nodes on S-3 and S-4 cotton plants at Phoenix, 1967--Continued

WEEK	WET	S-3 MED	DRY	WET	S-4 MED	DRY
25	13.50	13.38	13.53	13.32	13.24	12.91
26	16.77	16.47	15.92	16.51	16.47	14.90
27	18.91	18.38	17.30	18.42	18.75	16.63
28	21.37	20.06	19.29	20.55	20.92	18.17
29	23.65	22.58	22.26	22.97	23.09	21.15
30	25.81	23.61	23.67	24.76	24.36	22.58
31	28.04	25.94	25.60	26.42	26.31	24.07
32	29.46	26.32	27.38	27.39	27.70	25.26
33	31.31	27.81	28.00	28.23	28.63	25.18
34	32.26	28.32	29.84	28.84	28.73	27.18
35	32.74	28.98	30.36	29.08	28.85	27.63
36	33.47	29.51	31.18	29.68	29.18	27.41
37	34.23	30.28	32.40	30.42	29.72	28.80
38	34.47	30.72	33.27	30.77	30.35	30.13
39	34.73	30.90	33.59	31.34	30.56	30.49
40	34.79	30.98	33.63	31.65	30.65	30.29
41	34.85	31.03	33.79	31.88	30.68	30.65

Table 13.--Number of flowers and fruits per 40 plants S-3 and S-4 cotton at Phoenix, 1967--  
wet irrigation treatment

WEEK	S-3					S-4				
	SQR	ABS SQR	FLCW	ABS BOLL	HVST BOLL	SQR	ABS SQR	FLOW	ABS BOLL	HVST BOLL
22	18					48				
23	95	13				135	30			
24	184	23				239	41			
25	266	78				289	81			
26	446	225	8			633	257	19	3	
27	259	323	56	3		374	368	89	3	
28	171	211	72	19		328	206	137	28	
29	298	116	71	51		387	125	157	56	
30	260	145	73	51		370	135	190	100	
31	296	82	75	49	1	352	101	175	69	2
32	125	103	47	37	3	119	84	130	86	3
33	244	201	161	32	15	151	278	279	140	23
34	138	98	139	42	24	79	106	204	101	50
35	1	58	58	20	12		25	74	29	53
36		123	159	93	19		60	114	142	61
37		7	79	85	13		5	35	89	49
38				41	29				11	38
39				9	25				5	50
40				9	60				3	76
41					44					70
42					56					89
43					41					43
44					39					52
45					33					49
46					33					17
47					33					3
48					7					10

Table 14.--Number of flowers and fruits per 40 plants S-3 and S-4 cotton at Phoenix, 1967--  
medium irrigation treatment

WEEK	S-3					S-4				
	SQR	ABS SQR	FLCW	ABS BOLL	HVST BOLL	SQR	ABS SQR	FLOW	ABS BOLL	HVST BOLL
22	24					38	1			
23	116	16				96	21			
24	201	30				196	48			
25	262	73	1			246	53	3		
26	461	187	10			572	209	9	1	
27	241	356	78	3		371	346	78	8	
28	173	147	107	24		258	199	110	21	
29	283	102	97	52		328	125	118	39	
30	176	97	98	46		243	99	163	66	
31	287	87	104	47		305	132	156	55	
32	92	69	87	41	2	141	72	113	60	4
33	187	174	127	41	26	110	169	219	81	22
34	43	89	136	43	56	18	103	160	93	35
35	1	47	61	20	26		53	61	37	30
36		46	93	76	51		31	65	108	59
37		5	23	59	41		1	5	30	63
38				5	44				9	77
39				6	57					73
40				8	42				2	63
41					33					47
42					54					58
43					28					39
44					40					31
45					38					39
46					10					7
47					3					2

Table 15.--Number of flowers and fruits per 40 plants S-3 and S-4 cotton at  
Phoenix, 1967--dry irrigation treatment

WEEK	S-3					S-4				
	SQR	ABS SQR	FLCW	ABS BOLL	HVST BOLL	SQR	ABS SQR	FLOW	ABS BOLL	HVST BOLL
22	34					49				
23	127	16				139	36			
24	246	51				223	51			
25	315	98				226	55	1		
26	438	198	14	1		470	179	21	3	
27	196	296	94	3		290	234	96	6	
28	187	151	138	26		274	145	147	29	
29	329	77	136	57		362	92	164	55	
30	171	105	111	110		240	126	191	128	
31	329	106	96	62		289	118	154	107	
32	176	90	62	62		161	55	117	83	1
33	138	162	174	68	50	89	164	210	166	48
34	275	167	144	63	46	138	208	144	90	31
35		53	65	32	36	3	36	51	32	32
36		157	120	89	37		62	40	141	61
37		13	67	63	25		9	47	51	31
38				20	29				21	31
39				14	24				4	20
40				4	33				24	23
41					43					40
42					60					31
43					36					15
44					40					32
45					37					27
46					28					7
47					21					8
48					2					5
					22					

Table 16.--Number of flowers and fruits per 40 plants S-3 and S-4 cotton at Safford, 1967--  
wet irrigation treatment

WEEK	S-3					S-4				
	SQR	ABS SQR	FLCW	ABS BOLL	HVST BOLL	SQR	ABS SQR	FLOW	ABS BOLL	HVST BOLL
25	31					39				
26	86	3				111	3			
27	112	10				141	16			
28	236	27	5			318	27			
29	246	21	7	1		288	39	11	1	
30	388	108	25	5		638	188	46	2	
31	258	120	81	1		385	132	89	5	
32	114	83	104	4		188	135	162	5	
33	113	62	81	3		240	191	173	11	
34	306	244	271	45		285	239	295	63	
35	32	131	138	55		44	240	232	81	
36		286	115	245			312	146	350	
37					1		1		51	10
38					8					18
39					14					23
40					64					70
41					64					96
42					94					107
43					63					82
44					47					53
45					43					38
46					44					45
47					25					43

Table 17.--Number of flowers and fruits per 40 plants S-3 and S-4 cotton at Safford, 1967--  
medium irrigation treatment

WEEK	S-3					S-4				
	SQR	ABS SQR	FLCW	ABS BOLL	HVST BOLL	SQR	ABS SQR	FLOW	ABS BOLL	HVST BOLL
25	39					38				
26	110	4				97	3			
27	130	15				144	9			
28	202	38	2			208	26	3		
29	194	23	17			260	33	10		
30	340	91	26	8		532	144	32	1	
31	308	54	87	0		479	93	74	6	
32	110	48	87	7		211	104	97	1	
33	103	62	133	11		209	105	146	5	
34	153	153	300	32		260	270	391	54	
35	16	82	156	25		36	197	227	112	
36		198	129	337			315	194	429	
37					6		1		21	3
38					14					20
39					23				1	13
40					72					64
41					82					66
42					82					87
43					64					67
44					49					53
45					33					53
46					44					67
47					45					51

Table 18.--Number of flowers and fruits per 40 plants S-3 and S-4 cotton at Safford, 1967--  
dry irrigation treatment

WEEK	S-3					S-4				
	SQR	ABS SQR	FLCH	ABS BOLL	HVST BOLL	SQR	ABS SQR	FLOW	ABS BOLL	HVST BOLL
25	19					17				
26	53	1				82	2			
27	96	6				123	8			
28	209	21				286	29			
29	202	10				306	32	4		
30	377	84	14	1		622	115	20		
31	74	97	71	3		252	134	104	2	
32	38	97	114	2		79	129	130	1	
33	92	55	122	5		160	101	187	2	
34	220	89	231	55		306	209	391	17	
35	37	91	63	66		67	178	164	75	
36		196	53	94			251	112	334	
37		2			1				1	
38					1					7
39					26					28
40					55					90
41					90					129
42					86					151
43					69					95
44					47					71
45					25					42
46					30					47
47					12					20



